

A 61  
**JVC**

# **SERVICE MANUAL**

**MODEL  
QL-Y3F**

**QUARTZ FULLY AUTOMATIC  
TURNTABLE**



No. 2521  
June 1980  
A 61

# Contents

	Page
1. Specifications . . . . .	1
2. Service Precautions . . . . .	2
3. Names of Their Functions . . . . .	2
4. New Technology . . . . .	3
5. Adjustment Procedures . . . . .	4
6. Disassembly . . . . .	5
7. Troubleshooting Charts . . . . .	7
8. Connections Diagram . . . . .	14
9. Exploded Views and Parts List . . . . .	15
10. TXX-278 Printed Circuit Board Ass'y and Parts List . . . . .	18
11. Packing Materials and Part Numbers . . . . .	21
12. QL-Y3F Schematic Diagram . . . . .	22
13. Accessories List . . . . .	24
14. Parts List with Specified Numbers for Designated Areas . . . . .	24

**Warning:**

When replacing the parts marked with , be sure to use the designated parts to ensure safety.

## 1. Specifications

### MOTOR SECTION

Motor	: Coreless, DC type, FG servo-motor
Drive system	: Direct drive
Speeds	: 33-1/3, 45 rpm
Wow and flutter	: 0.025% (WRMS) 0.015% (by K & K measuring method)
Signal-to-noise ratio	: More than 78dB (DIN-B)
Speed detection	: Frequency generator
Starting torque	: 650 g·cm
Speed deviation	: Within 0.002%
Load characteristics	: 0% (with 130g total tracking force)
Drift	: 0.0001%/H
Power characteristics	: 0% ( $\pm 10\text{V}$ )
Temperature characteristics	: 0.00005%/ $^{\circ}\text{C}$
Platter	: 31cm

### TONEARM SECTION

Type	: Electronic servo controlled arm
Effective length	: 245mm
Overhang	: 15mm
Weight range	: 14 – 19.5 g (including headshell weight)
Variable tonearm height range	: 42 – 48mm (preset to 45mm)

### CARTRIDGE SECTION

(Except for U.S.A., Canada and the U.K.)

Model	: Z-1EB
Type	: Moving Magnet (MM)
Frequency response	: 10Hz – 25,000Hz
Output	: 3mV (1,000Hz)
Channel separation	: 25dB (1,000Hz) (test record TRS-1)
Load resistance	: 47k $\Omega$ – 100k $\Omega$
Compliance	: 10 x 10 <sup>-6</sup> cm/dyne (Dynamic) 30 x 10 <sup>-6</sup> cm/dyne (Static)
Stylus tip	: 0.3 x 0.7 mil diamond
Stylus	: DT-Z1EB
Optimum tracking force	: 1.75 ± 0.25 g

**GENERAL**

Power source	: Refer to Table at page 24
Power consumption	: Refer to Table at page 24
Dimensions	: 16.9(H) x 48(W) x 43(D)cm (6-5/8" x 1-15/16" x 1-3/4") (Since the dimensions show only the design measurements, consideration is required when installing the unit in a limited space such as a rack, etc.)
Weight	: 9.5kg (20.9 lbs) (without corrugated card board case)
Accessory	: EP adaptor . . . . . 1

*Design and specifications subject to change without notice.*

### CHECKING YOUR LINE VOLTAGE (For U.S. Military Market and Other Countries)

Before inserting the power plug, please check this setting to see that it corresponds with the line voltage in your area. If it doesn't, be sure to adjust the voltage selector switch to the proper setting before operating this equipment. The voltage selector switch is located either on the set's or the chassis. Simply insert a screw driver into the voltage selector switch and turn it in either direction while pressing slightly and in such a way that desired voltage marked on the switch is positioned at the arrow marked on the rear panel or the chassis. The voltage selector switch accommodates up to three turns in either direction.

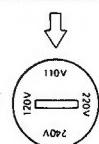


Fig. 1

## 2. Service Precautions

1. For repair of the tonearm, only the parts whose names and numbers are listed on page 17 are replaceable. So be careful not to remove any other part.
2. For repair of any component other than the tonearm, be sure to perform part replacement in accordance with the appropriate unit of the block shown in the disassembly diagram.
3. When remounting the motor base or tonearm ensure positive contact with the base of the tonearm (as shown in Fig. 23) and then secure.
4. Ensure that the turntable is level when servicing motor rotation or arm action.

5. If power is applied when the motor connector is disconnected the drive transistor will be damaged. Therefore, never disconnect the motor connector if the power is on or will be applied.
6. Note that when repairing the printed board, if the heat-sink is removed, transistor temperature will rise.
7. Upon completion of repair or replacement of the tonearm, motor or any other component, be sure to perform Lead-in and Lead-out adjustments.
8. Locating the tuner antenna and the turntable output lead closely may cause noise due to disturbance from the tuner; therefore, place them as far from one another as possible.

## 3. Names of Their Functions

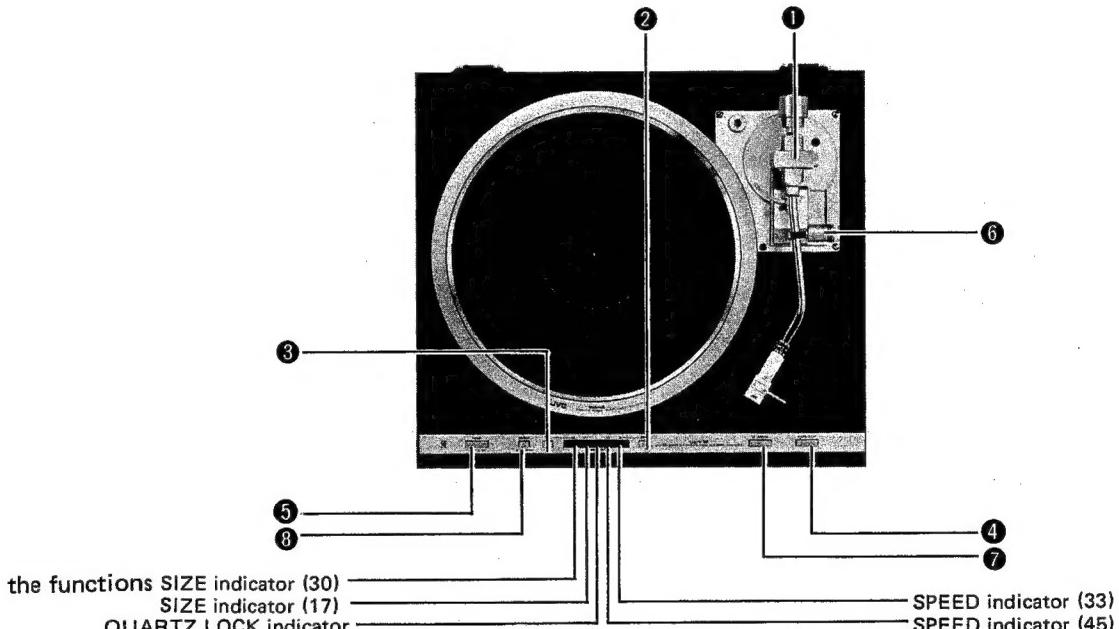


Fig. 2

### 1. Tonearm

This tonearm is called an Electro Servo Tonearm. All the functions, anti-skating, etc. are done electrically.

### 2. SPEED switch

Select the speed depending on record rpm. The platter rpm is indicated by the SPEED indicators.

### 3. SIZE switch

Select the size depending on record size. Selected size is indicated by the SIZE indicators.

### 4. START/STOP switch

Press this switch to rotate the platter. When the speed reaches normal, QUARTZ LOCK indicator (green) lights. Then the tonearm automatically lifts up and moves to lead-in.

### 5. READY switch

**ON:** Depress this switch to power the turntable system on. SPEED and SIZE indicators light. Anti-skating is automatically applied, as already set.

**OFF:** Re-depress the switch to cut the power off. The SPEED, SIZE and QUARTZ LOCK indicators go out, and anti-skating become "zero".

**Note:** When you re-depress the READY switch, make sure the tonearm is clamped on the arm rest, otherwise you may damage a record or the stylus. Even when the READY switch is set to OFF, about 2-watt power is consumed. Accordingly, disconnect the power cord from wall outlet to cut the power completely off.

### 6. ANTI-SKATING TRACKING FORCE knob

This knob is provided to cancel the centripetal force (sliding of the tonearm to the center of the record) and to prevent the stylus tip from sliding or exerting unwanted force to the inner side of the record groove. This is automatically and electrically set to the optimum value by selecting the designated stylus force.

### 7. UP/DOWN switch

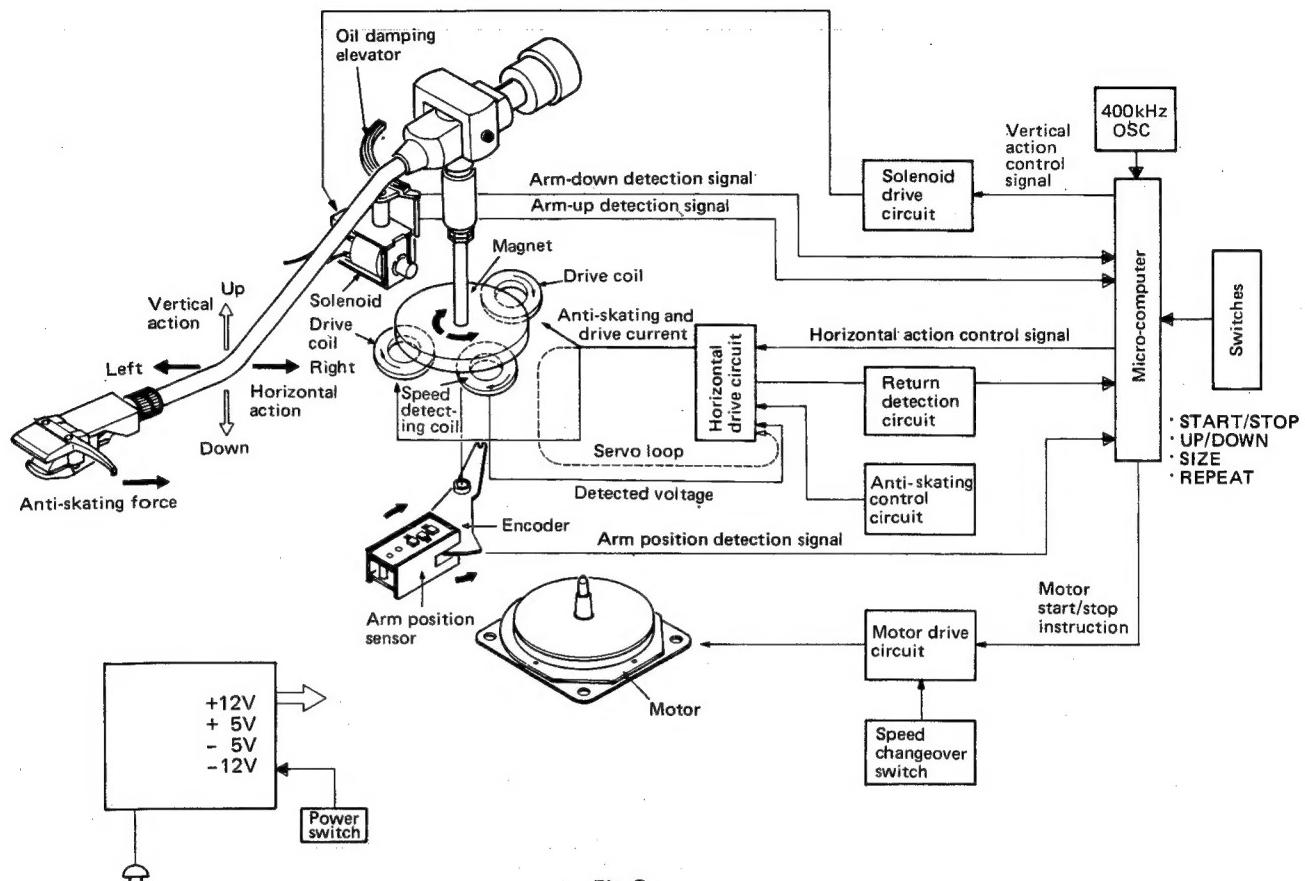
When this button is pressed the tonearm will lower to the record surface. To lift the tonearm up from the record, press this button again.

### 8. REPEAT switch

Depress this button for repeated play.  
Press again to release the REPEAT function.

## 4. New Technology

### 4-(1) Electro-dynamic Servo Control Tonearm



### 4-(2) Detecting Record-end

In the Electro Servo Tonearm, since the tonearm speed is detected, the record feed pitch can also be electrically detected.

This tonearm is provided with a positional restriction device that detects the record end by using a LED and a phototransistor. Because this device is set, records falling within the standards range can be detected electrically.

### 4-(3) Lead-in Positioning

The lead-in positioning is performed by the microcomputer. The position (rotating angle) or the tonearm in motion is detected by reading the address (001, 010 . . . etc.) in the rotating encoder in unity with the tonearm by using the three LED/phototransistors.

The microcomputer always compares the position of the tonearm in motion and the designated lead-in position, stops the tonearm motion, and issues the command to lower the stylus on the record surface. In addition, this microcomputer determines the operating position of the tonearm rest switch and the starting position of lead-out as well. (Fig. 4)

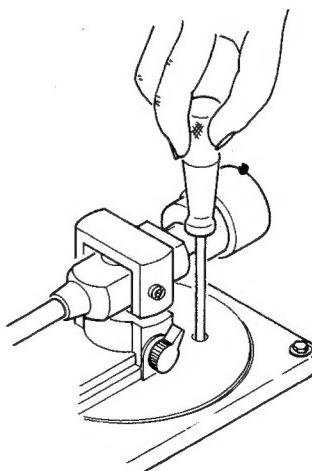


Fig. 4

# 5. Adjustment Procedures

## 5-(1) UP Switch Adjustment

- Secure the tonearm on the rest with the clamp, and adjust the tonearm height to 5.5mm with the arm set screw. (Fig. 5, 6)
- Undo the clamp, set the UP/DOWN switch to the UP position, and adjust the clearance between the record disk and the stylus tip to 5 ~ 7mm height.

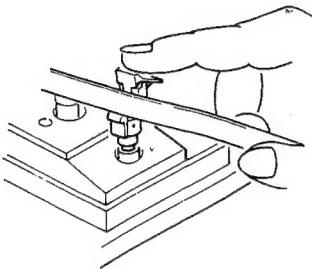


Fig. 5

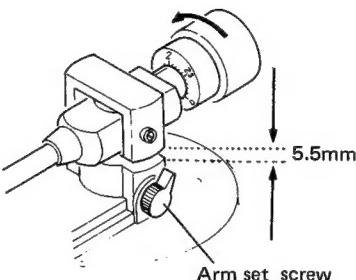


Fig. 6

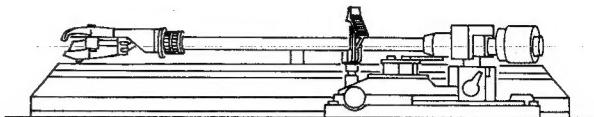


Fig. 8

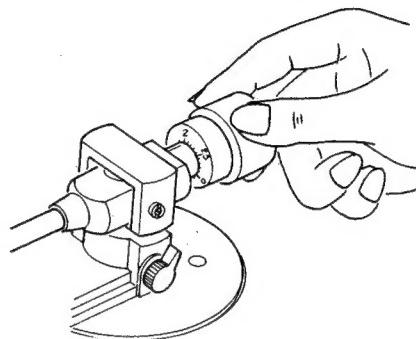


Fig. 9

- Prepare to measure the resistance value between terminals 3 and 4 of the plug ass'y (P1) on the circuit board (TXX-278-1).
- With the UP/DOWN switch set to the UP position, confirm that the measurement value is  $10k\Omega$  with the elevator raised to the uppermost limit. (When measuring, the rubber switch of the tonearm must be away from its point of contact with the elevator.)

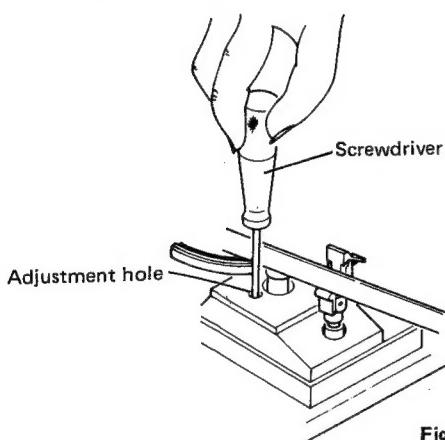


Fig. 7

In addition, if the value of  $10k\Omega$  is unobtainable, remove the elevator and insert a spacer between the elevator and the elevator shaft. Thereupon, adjust the contact separation between the rubber switch and contact separation between the rubber switch and the elevator to around 1mm ( $0.8 \sim 1.2mm$ ) in the playback mode.

## 5-(2) Tracking Force

- Place a record on the platter.
- Remove the stylus protector cover.
- Release the tonearm clamp.
- Turn the main weight so that the tonearm maintains a balance with the stylus tip is almost touching to the record. (Fig. 8, 9)

- Return the tonearm to its rest and clamp it.
- Hold the counterweight at the adjusted position and aligned with the index line on the tonearm weight shaft. Turn the counterweight in the A direction until the "1.75" mark on the dial is aligned with the index line for the model preparing cartridge Z-1EB. (Except the model QL-Y3F for U.S.A., CANADA, and (U.K.))

## 5-(3) Lead-in Adjustment

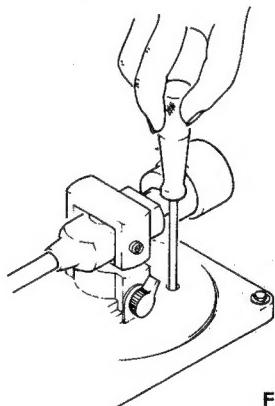


Fig. 10

Be sure to perform this adjustment prior to lead-out adjustment.

- Set the SIZE switch to 17. Then, turn the lead-in adjusting screw so that the tonearm sets down on the test record when the lead-in count on the test record shows  $16 \pm 3$ .

Note: For a larger lead-in count, turn the screw counterclockwise, whereas for a smaller lead-in count, turn it clockwise. However, the screw is provided with no stopper. Note therefore that excessive turning results in reversed directionality.

## 5-(4) Lead-out Adjustment

1. Adjust VR803 so that the tonearm returns at the 3mm pitch point of the test record (8602-44) and does not return at the 0.5mm pitch point of the test record (8602-45).

When the tonearm does not return at the 3mm pitch point of the test record (8602-44), adjust the voltage between TP-2 (GND) and TP-3 so that it is closer to 0V by about 20% than the set voltage.

When the tonearm returns at the 0.5mm pitch point of the test record (8602-45), adjust the said voltage so that it is closer to 0V by about 20% in absolute value than the set voltage.

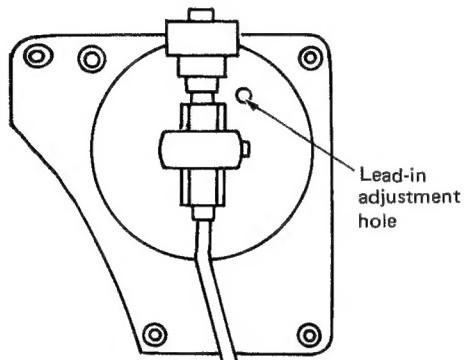


Fig. 11

## 5-(5) Motor's Rotation

Since this double servo quartz control turntable is designed to have a wider locking range than the conventional turntable, it is not required to adjust the RPM.

## 5-(6) Tonearm Off-set Position

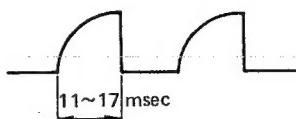
Set the voltage between TP-1 and TP-2 to 0V by turning VR802 (with the tonearm secured to the arm rest in the "UP" position).

Note: Allowable range of "0V" is  $\pm 5\text{mV}$ .

## 5-(7) Quartz Oscillation Wave Phase Adjustment

1. Set RPM to 33-1/3.
2. Observe the wave duration (T) from leading to trailing edges, and adjust the duration to 11 ~ 17 msec with VR804.

Waveform on oscilloscope



Impedance conversion circuit

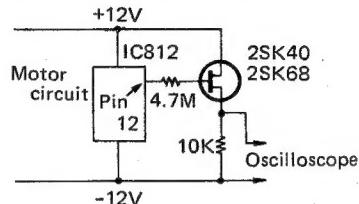


Fig. 12

## 5-(8) Anti-skating Adjustment

1. Set the anti-skating adjustment knob to 1.5g on the dial.
2. Adjust VR801 so that  $185 \pm 10\text{mV}$  appears between terminals 1 and 2 of VR805.

## 6. Disassembly

### Procedure

1. Removal of Yoke B (Figs 13 and 14)

As this yoke is a threaded type, turn it counterclockwise for removal.

Put a name card between the circuit board and the slightly freed yoke to protect the coils against any damage due to magnetic force.

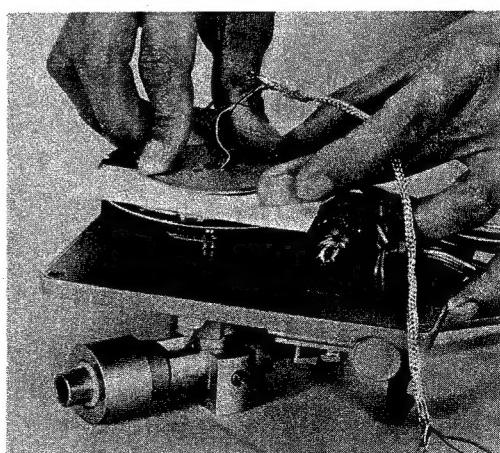


Fig. 13

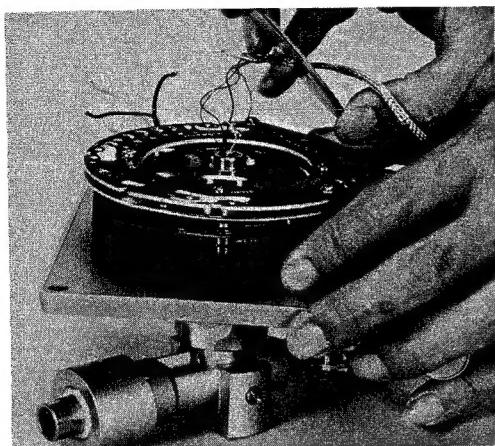


Fig. 14

## 2. Remove the coil circuit board. (Fig. 15)

## 3. Removal of Yoke A (Figs 15 and 16)

Loosen the two yoke set screws with an allen wrench, and remove the yoke as shown below.

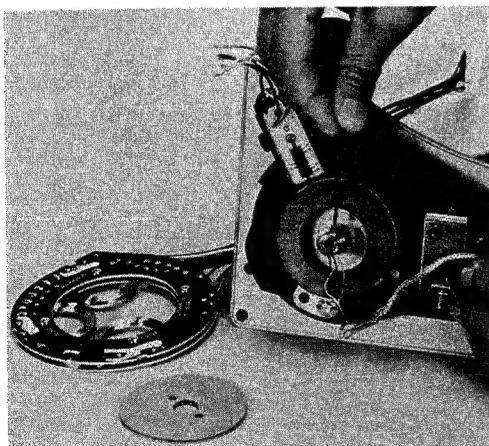


Fig. 15.

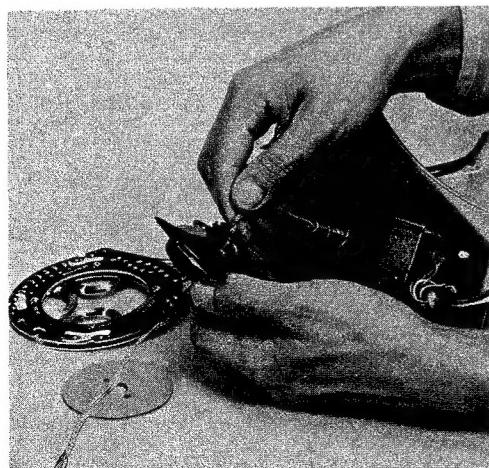


Fig. 16

## 4. Removal of Tonearm (Fig. 17)

Loosen the two set screws of the arm shaft with an Allen wrench, and remove the tonearm as shown below.

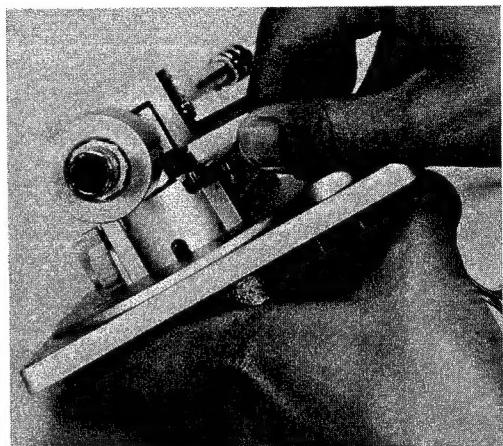


Fig. 17

## 5. Assembly (Fig. 18)

Iron dust adhered to the yokes caused damage to the coils or degradation of the tonearm sensitivity (horizontal action). So, thoroughly remove it with an adhesive agent such as a cellophane tape, etc.

- (1) Position yoke A. (Use a screwdriver for positioning.)
- (2) Adjust the height of yoke A so that the cord plate is located at the center of the lamp house.
- (3) Secure yoke A.
- (4) Position the coil circuit board, and mount yoke B. At this time, be sure to keep the two following points:
  - a) Put a name card on the coil circuit board to protect it.
  - b) Position the yoke surface (with the roundish edge) to the coil side to protect the coil from any damage. (See Fig. 18)

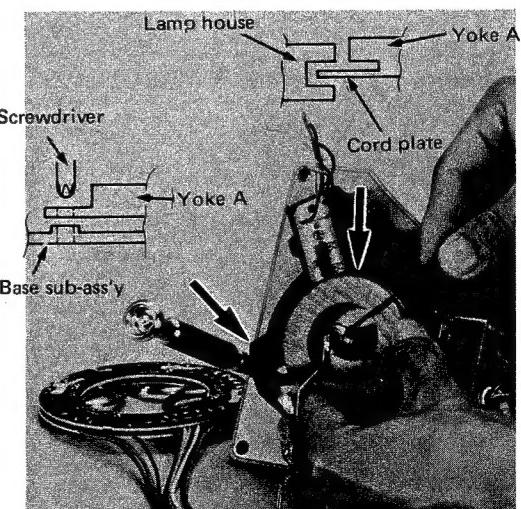
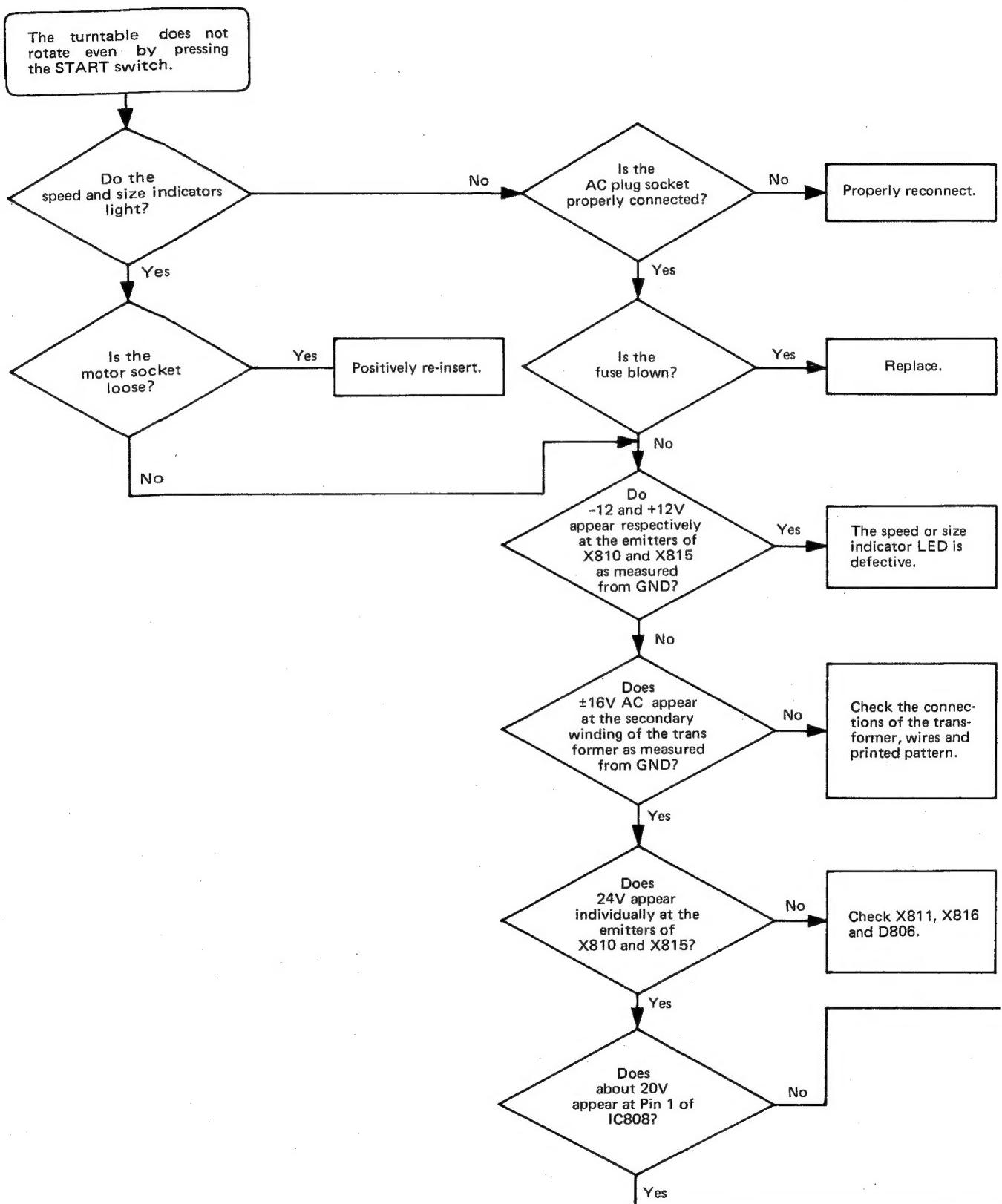


Fig. 18

# 7.Troubleshooting Charts

## 7-(1) The turntable does not rotate



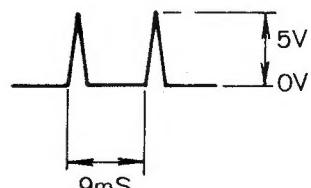
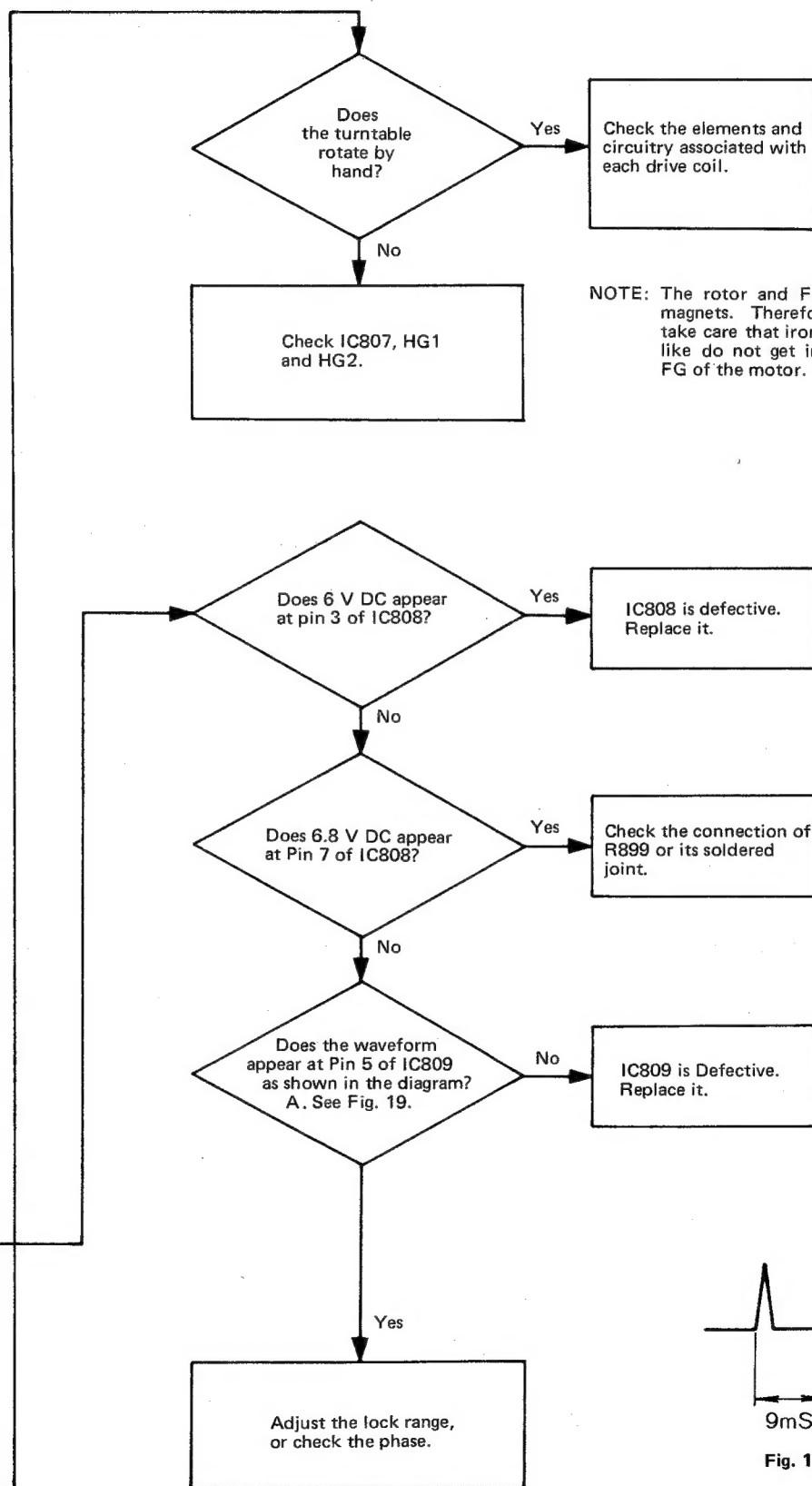
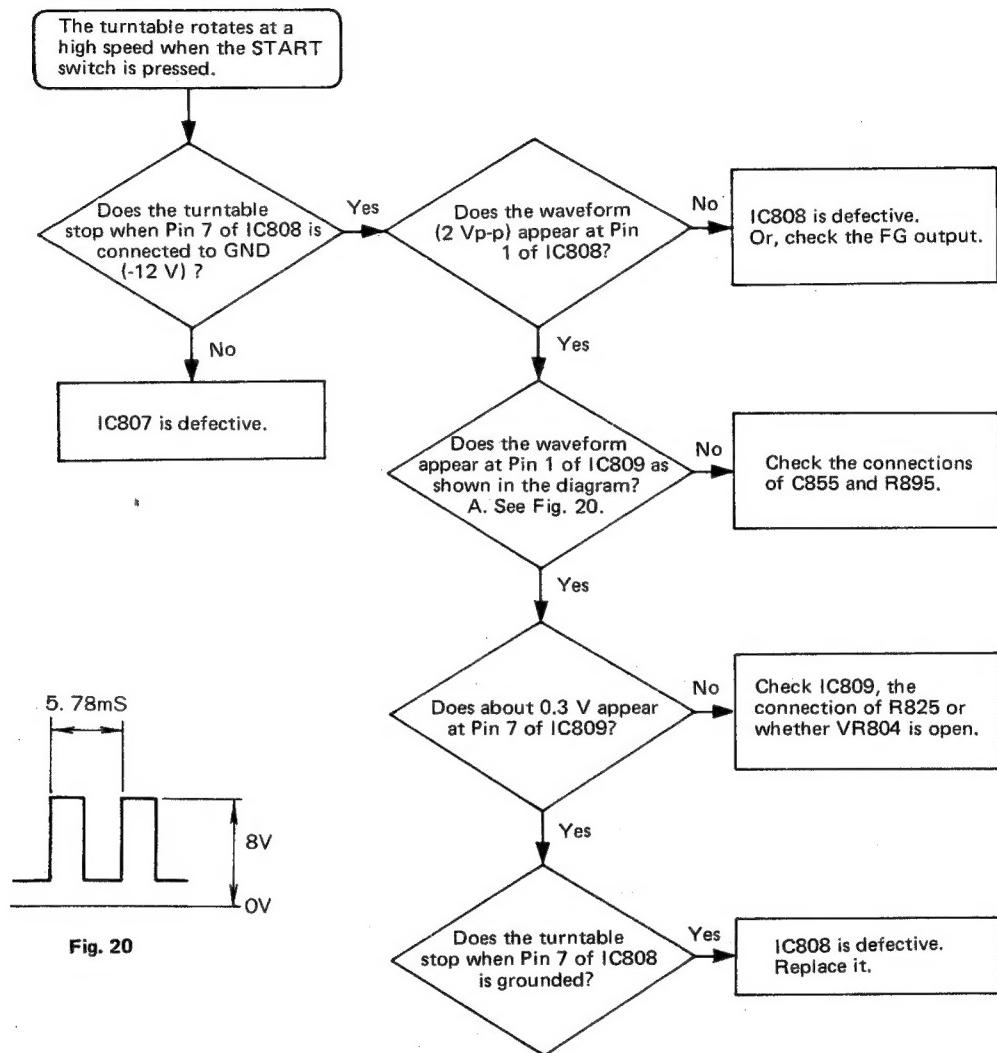
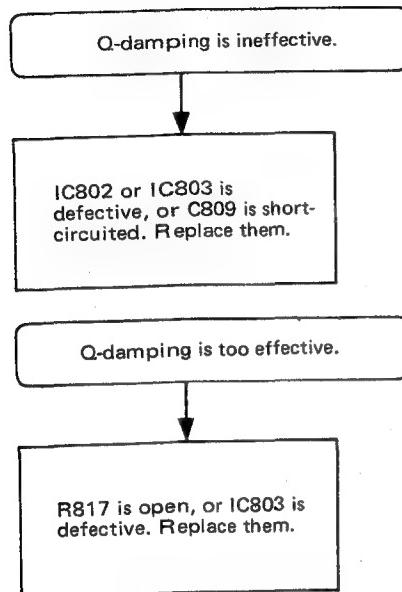
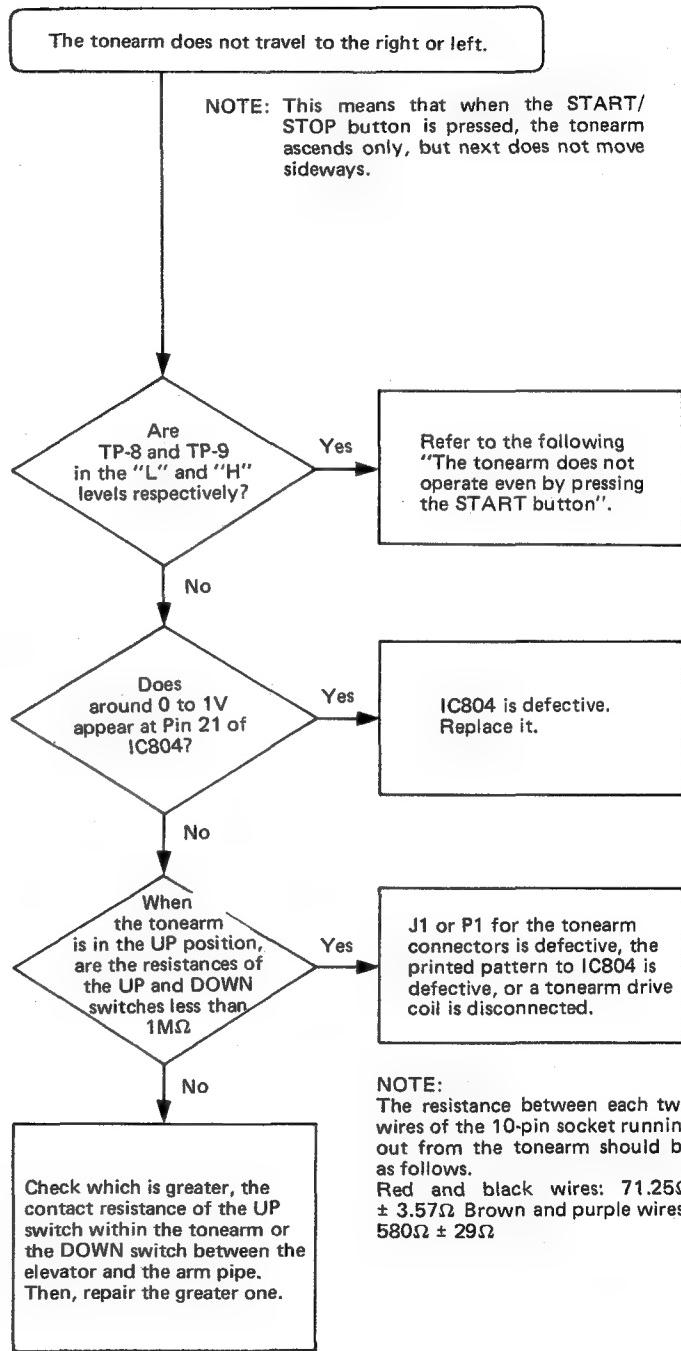
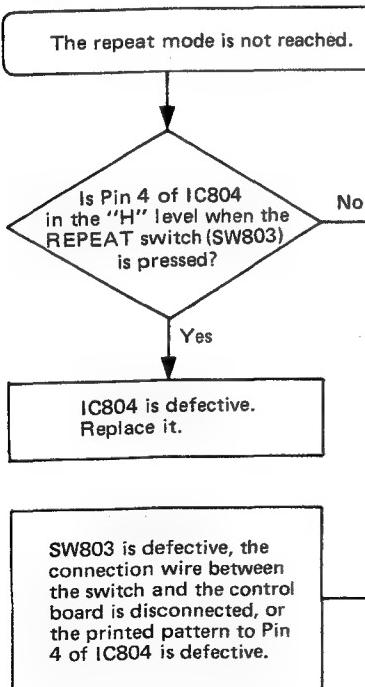
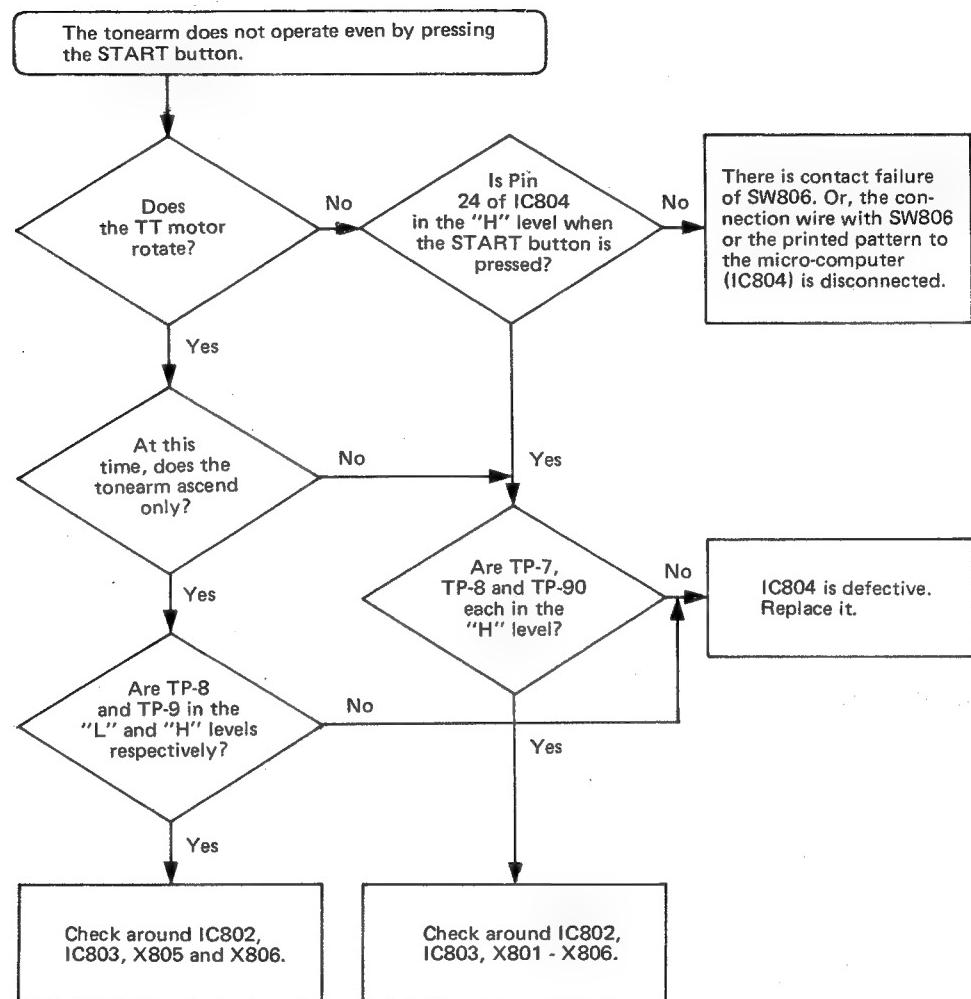


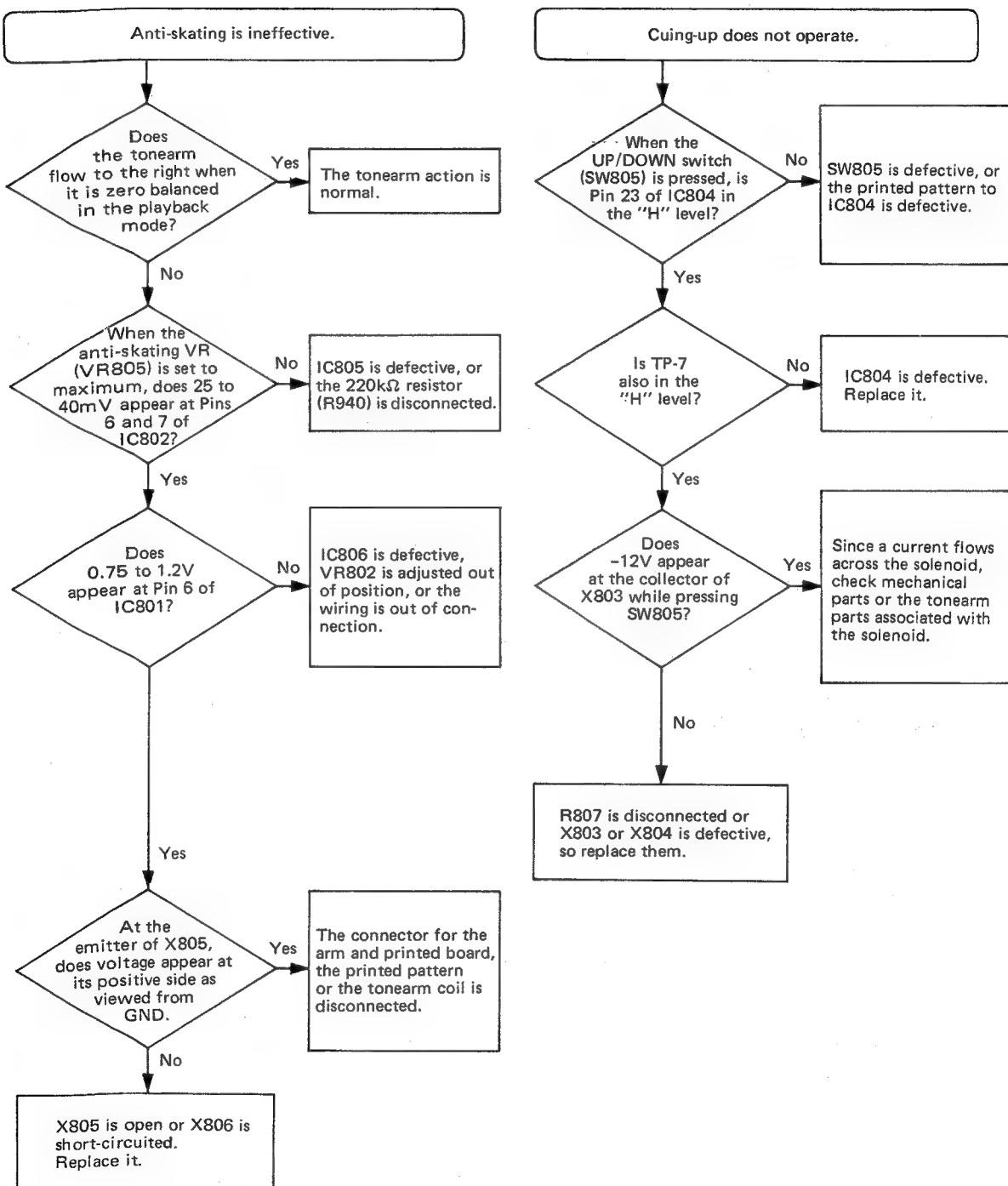
Fig. 19

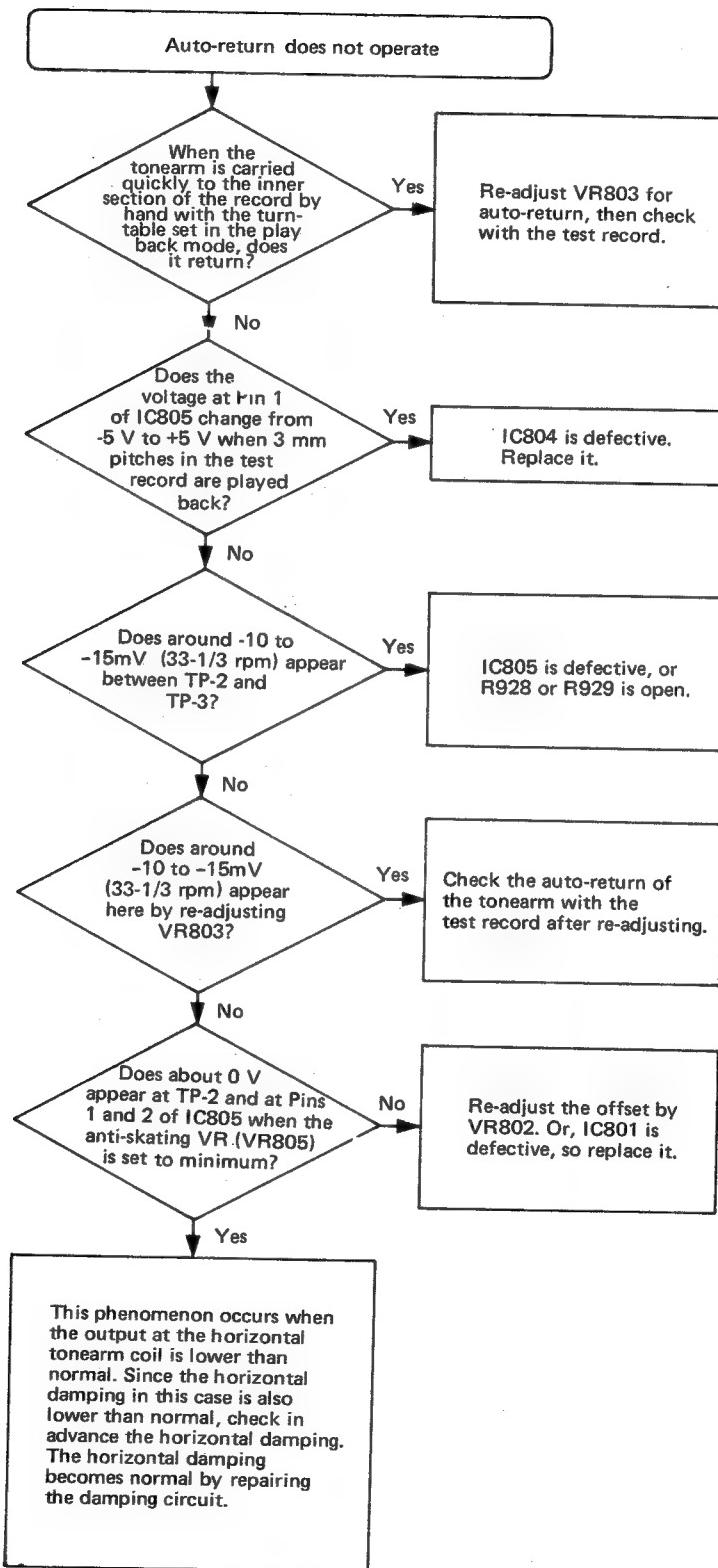
## 7-(2) The turntable rotates at high speed



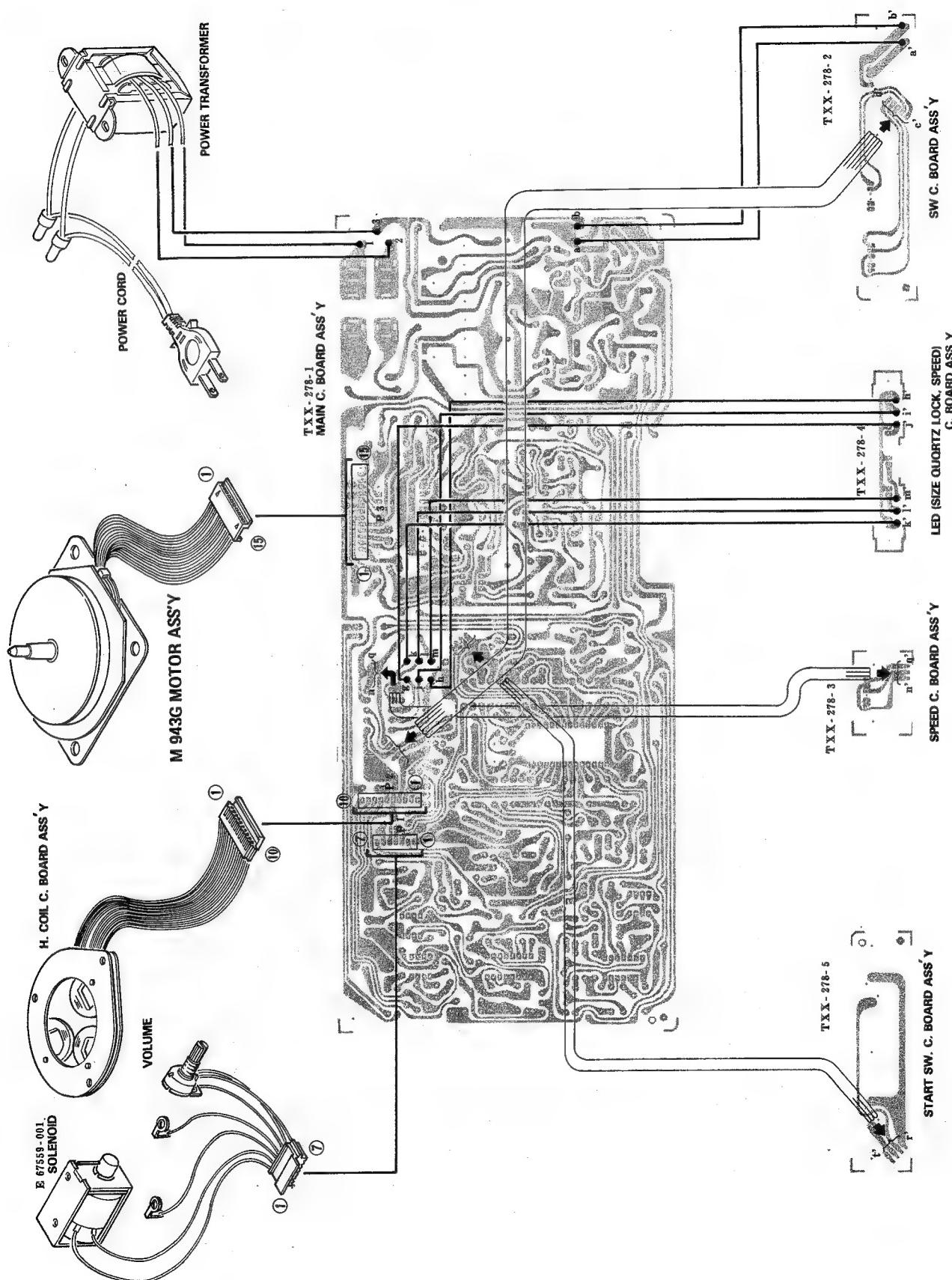
**7-(3) Q-damping is abnormal****7-(5) Tonearm action is abnormal****7-(4) Repeat operation is abnormal**







## 8. Connections Diagram



# 9.Exploded Views and Parts List

## 9-(1) Platter and Cabinet

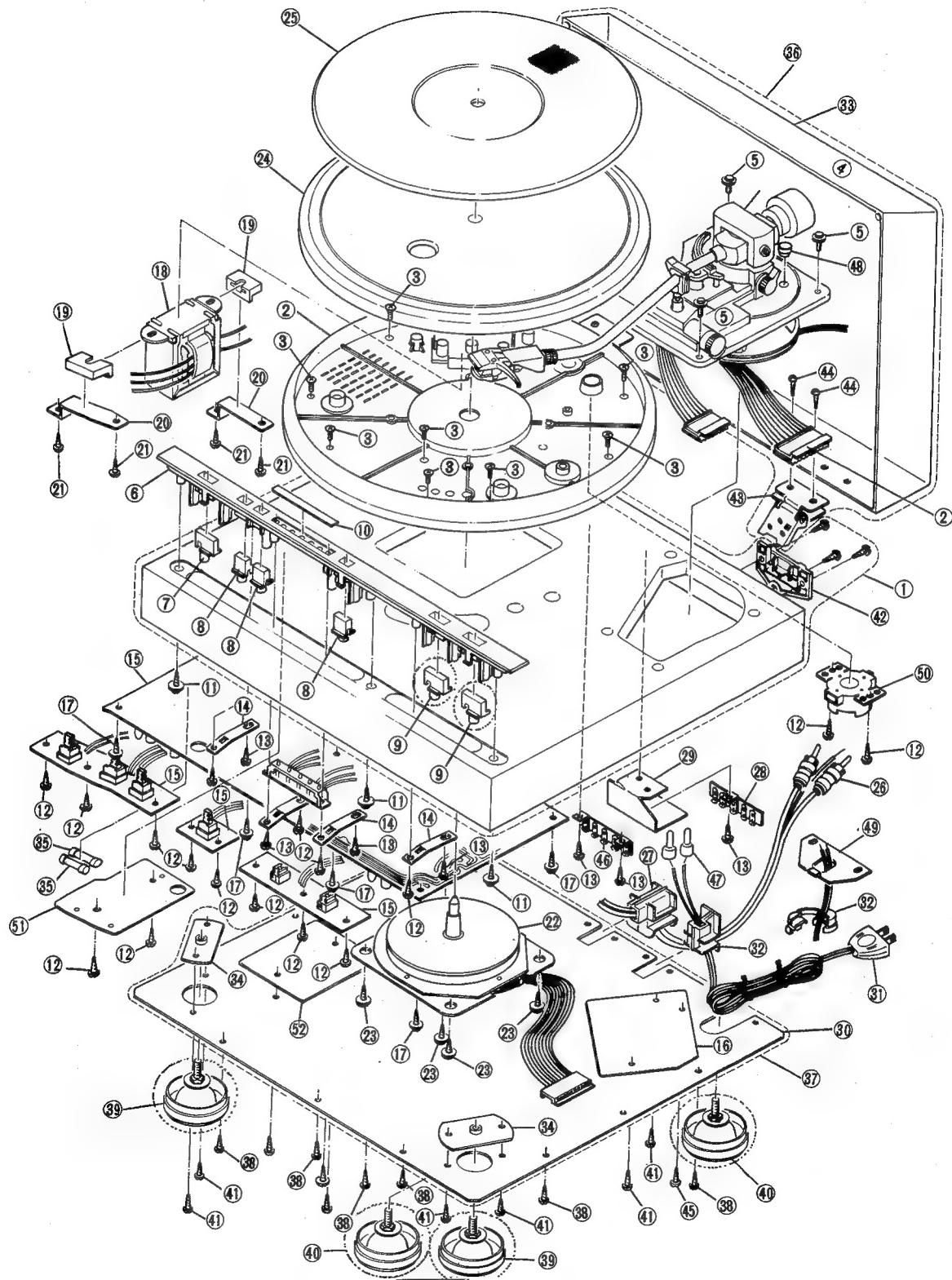


Fig. 22

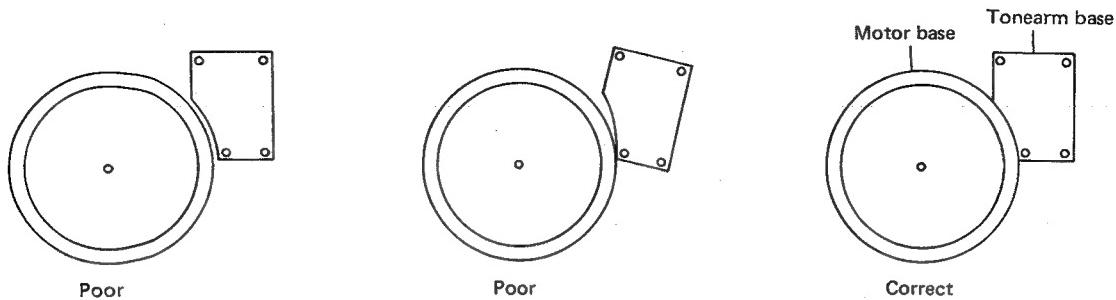


Fig. 23

**Caution:**

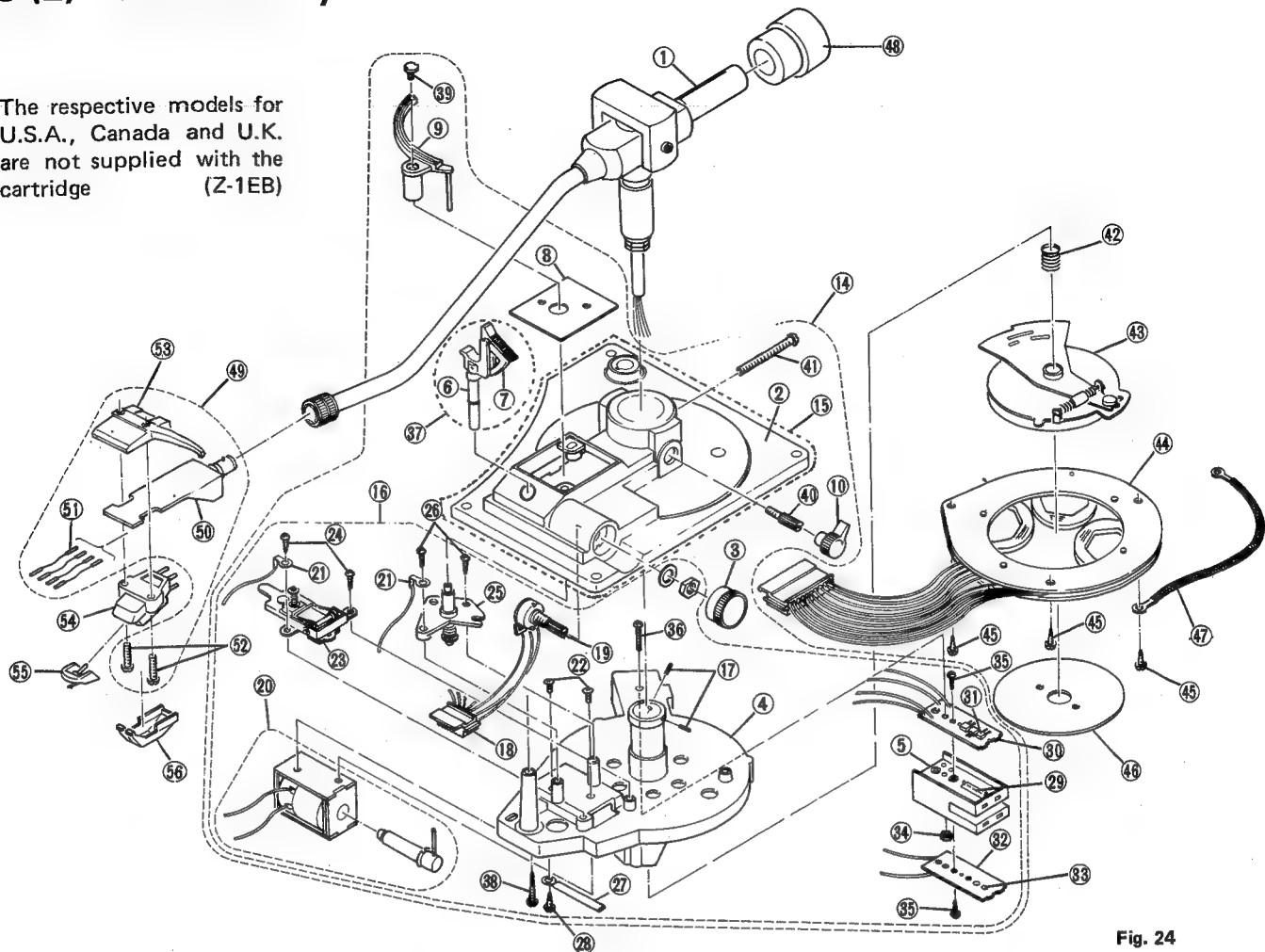
When removing the motor base or tone-arm ensure positive contact with the tonearm base as shown in the right, Fig. 23, and then secure.

Item No.	Part Number	Rating	Description
1	DL-ED92955		Cabinet Ass'y
2	E10405-005		Base
3	SHSA3014M		Screw
4	See page 24, Sect. 14		P.U. Ass'y
5	E66892-002		Screw
6	E23516-002		Panel
7	E300582-003		Push Button
8	E300581-002		Push Button
9	E300649-005		Button Sub Ass'y
10	E67463-001		Window Sheet
11	E65923-001		T. Screw
12	E65921-002		T. Screw
13	SBSA3012Z		Screw
14	E67464-001		Plate
15	See page 24, Sect. 14		C.B. Ass'y
16	E67590-001		Shield Plate
17	GBSB3008Z		Screw
18	See page 24, Sect. 14		Power Trans
19	E61824-002		Cushion
20	E66885-001		Trans. Plate
21	E65921-003		T. Screw
22	M-943G		Motor Ass'y
23	E65922-005		T. Screw
24	E23112-002		T. Table
25	E23326-003		T. T. Covering

Item No.	Part Number	Rating	Description
26	E03724-002		Signal Cord
27	A27355		Cord Stopper
28	QML0002-051		Lug Strip Ass'y
29	E60090-004		Shield Cover
30	E10406-003		Bottom Cover
31	See page 24, Sect. 14		Power Cord
32	See page 24, Sect. 14		Cord Stopper
33	ED-20946-006		Cover Ass'y
34	E67471-001		Foot Plate
35	See page 24, Sect. 14		Fuse
36	E35263-001		D. Cover Ass'y
37	See page 24, Sect. 14		B. Cover Ass'y
38	MRSP2713M		Screw
39	See page 24, Sect. 14		Foot Ass'y
40	See page 24, Sect. 14		Foot Ass'y
41	SBSB3008Z		Tapping Screw
42	E65588-001		Lock Plate
43	E61992-001		Hinge Ass'y
44	SDSP3008M		Screw
45	E65119-003		Special Screw
46	See page 24, Sect. 14		Lug Strip Ass'y
47	See page 24, Sect. 14		Connector
48	See page 24, Sect. 14		Mask Cap
49	See page 24, Sect. 14		C.S. Bracket
50	See page 24, Sect. 14		V. Selector
51	See page 24, Sect. 14		Barrier Plate
52	See page 24, Sect. 14		Barrier Plate

## **9-(2) Tonearm Ass'y**

The respective models for U.S.A., Canada and U.K. are not supplied with the cartridge (Z-1EB)



**Fig. 24**

Item No.	Part Number	Rating	Description
1	E23589-001		Arm Ass'y
2	E10529-001		P.U. Base
3	E301117-001		A.S. Knob
4	E23587-001		Coil Base Sub Ass'y
5	E300672-001		Lamp House
6	E35898-001		Rest
7	E35899-001		Rest Clumper
8	E67508-001		Plate
9	E301118-001		Elevator
10	E301124-001		Knob
11	E301121-001		Weight Pipe
12	E301120-001		Counter Cap
13	E23589-001		Arm Ass'y
14	E23590-001		P.U. Base Ass'y
15	E301186-001		P.U. Base Sub Ass'y
16	E23588-001		Coil Base Ass'y
17	YRS3003MS		Set Screw
18	EWS017-024		SKT. Wire Ass'y
19	QVK5A6B-014		V. RES.
20	E67559-001		Solenoid
21	E67560-001		Lug
22	SSBP3005NS		Screw
23	E67515-001		Lever Ass'y
24	SBSB2606Z		Tapping Screw
25	E67517-001		E. Bracket Ass'y
26	SBSB3008Z		Tapping Screw
27	E50670-005		Wire Clamp
28	SBSB3006Z		Tapping Screw

Item No.	Part Number	Rating	Description
29	E66931-001		Mask
30	E66944-001		S.C. Board (A)
31	PN150F		TR.
32	E66945-001		S.C. Board (B)
33	LN25RPCPLF		L.E.D.
34	NNB2600		Nut
35	SBSB2605Z		Tapping Screw
36	SPSP2616Z		Screw
37	E65824-001		Rest Ass'y
38	E66133-001		Tapping Screw
39	E66933-001		Screw
40	E67509-001		Screw
41	SPSP4050Z		Screw
42	E67539-001		Spring
43	E301123-001		Yoke (A) Ass'y
44	E301122-001		H.C. Board Ass'y
45	SBSB3012Z		Tapping Screw
46	E67513-001		Yoke (B)
47	E67558-001		Shield Tube Ass'y
48	E67518-001		Main Weight Ass'y
49	E35991-002		Head Shell Ass'y
50	E35990-002		Head Case Ass'y
51	E60501-005		Wire Ass'y
52	E60502-001		Screw
53	E35989-002		Finger
54	MD-1025EBZ		Cartridge
55	DT-Z1EB		Stylus Ass'y
56	E34268-001		Stylus Cover

## 10. TXX-278 Printed Circuit Board Ass'y and Parts List

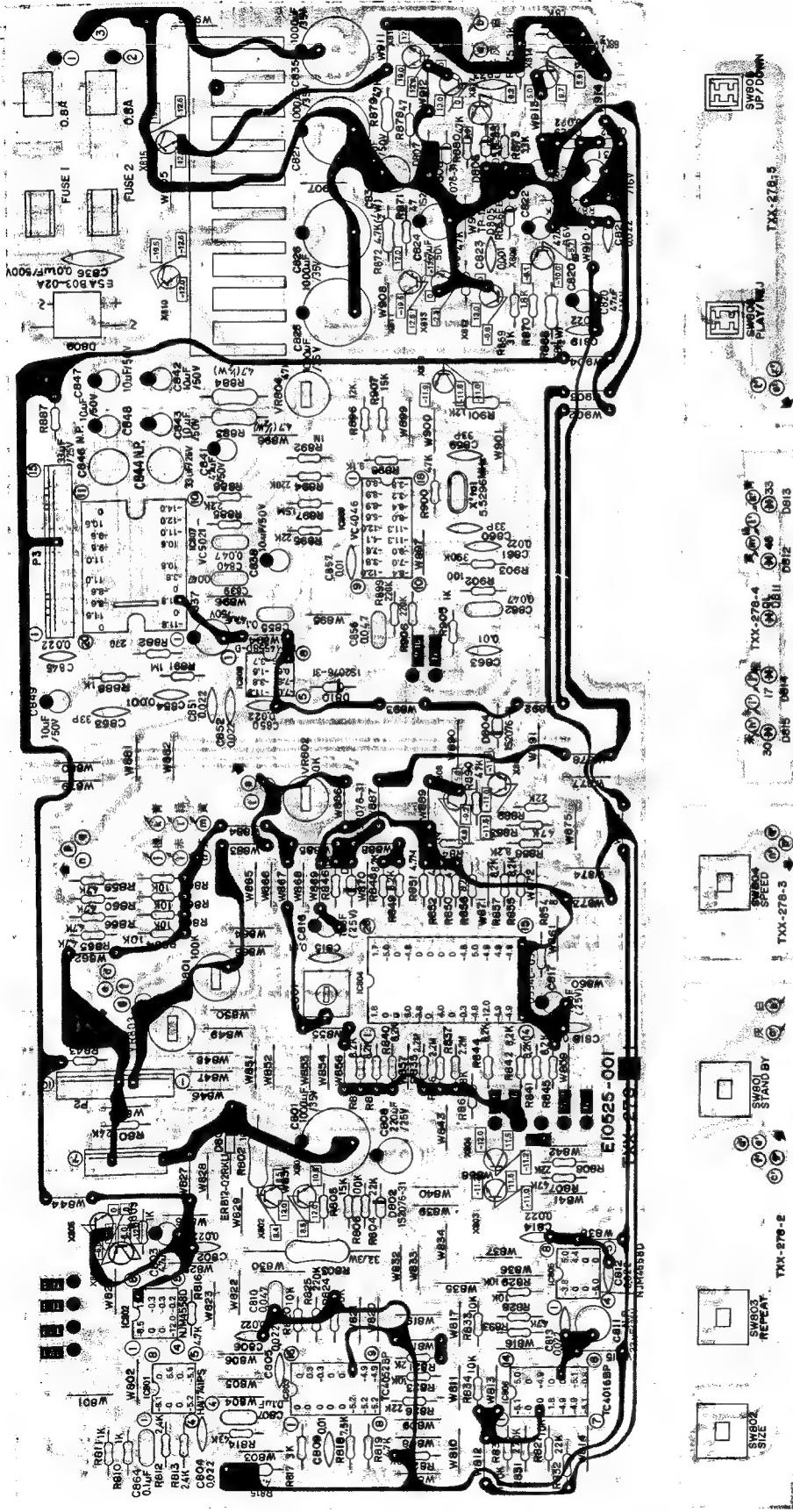


Fig. 25

- ① TXX-278-1 : Quartz Servo Motor Control & Arm Control
- & Power Supply P.C. Board Ass'y
- ② TXX-278-2 : Size, Repeat, READY Switches P.C. Board Ass'y
- ③ TXX-278-3 : Speed Switch P.C. Board Ass'y
- ④ TXX-278-4 : LED P.C. Board Ass'y
- ⑤ TXX-278-5 : START/STOP, UP/DOWN Switches P.C. Board Ass'y

Note (1): In  should be indicated an area code according to the table shown on page 24, section 14 when preparing an order form.

Note (2): The specific symbols (赤、黒、白、etc) on a surface of P.C. Board are actually unrelated to the repair service and are significant denotement in order to process the proper assembly of P.C. Board at the factory.

**Transistor**

Item No.	Part No.	Rating		Description	
		Pc	fT	Maker	
X801	2SD325(E)	10W	8MHz	Silicon	Sanyo
	2SC945A(P,Q)	0.25W	250MHz	"	NEC
	2SC945A(P,Q)	"	"	"	"
	2SD325(E)	10W	8MHz	"	Sanyo
	2SD571(L,K)	0.8W	110MHz	"	NEC
6	2SB605(K,L)	0.8W	120MHz	"	"
7	2SC945A(P,Q)	0.25W	250MHz	"	"
8	2SA733A(P,Q)	0.25W	180MHz	"	"
9	2SB605(K,L)	0.8W	120MHz	"	"
10	2SB507V(E)	30W	8MHz	"	Sanyo
11	2SB560(E)	0.75W	100MHz	"	"
12	2SA733(P,Q)	0.25W	180MHz	"	NEC
13	2SC945A(P,Q)	0.25W	250MHz	"	"
14	2SD571(L,K)	0.8W	110MHz	"	"
15	2SD313V(E)	30W	8MHz	"	Sanyo
16	2SD438(E)	0.75W	100MHz	"	NEC
17	2SC945A(P,Q)	0.25W	250MHz	"	"
18	2SC945A(P,Q)	0.25W	250MHz	"	"
19	2SC945A(P,Q)	0.25W	250MHz	"	"

**Capacitors**

Item No.	Part Number	Rating		Description	
		PC	fT	Maker	
C801	QET51VR-108H	1000 $\mu$ F	35 V		Electrolytic
C802	QCC21EM-223	0.022 $\mu$ F	25 V		Ceramic
C803	QET51HR-475H	4.7 $\mu$ F	50 V		Electrolytic
C804	QCC21EM-223	0.022 $\mu$ F	25 V		Ceramic
C805	QCC21EM-223	0.022 $\mu$ F	25 V		Ceramic
C806	QCC21EM-223	0.022 $\mu$ F	25 V		Ceramic
C807	QFM81HK-104	0.10 $\mu$ F	50 V		Myler
C808	QFT51HR-227H	22 $\mu$ F	50 V		Electrolytic
C809	QCF21HP-104	0.10 $\mu$ F	50 V		Ceramic
C810	QFM81HK-473	0.047 $\mu$ F	"		Myler
C811	ECEA1EN330S	33 $\mu$ F	25 V		Non Pole
C812	QCC21EM-223	0.022 $\mu$ F	25 V		Electrolytic
C813	QCC21EM-223	0.022 $\mu$ F	25 V		Ceramic
C814	QCC21EM-223	0.022 $\mu$ F	25 V		"
C815	QCF21HP-103	0.010 $\mu$ F	50 V		"
C816	QET51ER-106H	10 $\mu$ F	25 V		Electrolytic
C817	QET51ER-106H	10 $\mu$ F	25 V		"
C818	QCF21HP-103	0.010 $\mu$ F	50 V		Ceramic
C819	QCC21EM-223	0.022 $\mu$ F	25 V		"
C820	QET51CR-476H	47 $\mu$ F	16 V		Electrolytic
C821	QCC21EM-223	0.022 $\mu$ F	25 V		Ceramic
C822	QET51CR-476H	47 $\mu$ F	16 V		Electrolytic
C823	QCF21HP-102	1000 pF	50 V		Ceramic
C824	QET51HR-476H	47 $\mu$ F	"		Electrolytic
C825	QET51VR-108H	1000 $\mu$ F	35 V		"
C826	QET51VR-108H	"	"		"
C827	QFT51VR-108H	"	"		"
C829	QCC21EM-223	0.022 $\mu$ F	25 V		Ceramic
C830	QET51CR-476H	47 $\mu$ F	16 V		Electrolytic
C831	QCC21EM-223	0.022 $\mu$ F	25 V		Ceramic
C832	QET51CR-476H	47 $\mu$ F	16 V		Electrolytic
C833	QCF21HP-102H	1000 pF	50 V		Ceramic
C834	QET51HR-476H	47 $\mu$ F	50 V		Electrolytic
C835	QET51VR-108H	1000 $\mu$ F	35 V		"
C836	QCE22HP-103	0.010 $\mu$ F	500 V		Ceramic
C837	QET51HR-476H	47 $\mu$ F	50 V		Electrolytic
C838	QET51HR-106H	10 $\mu$ F	50 V		"
C839	QFM81HK-473	0.047 $\mu$ F	50 V		Myler
C840	QFM81HK-473	0.047 $\mu$ F	50 V		"
C841	QET51HR-475H	4.7 $\mu$ F	50 V		Electrolytic
C842	QET51HR-106H	10 $\mu$ F	50 V		"
C843	QET51HR-106H	10 $\mu$ F	50 V		"
C844	ECEA1EN330S	33 $\mu$ F	25 V		Non Pole
C845	QCF21HP-223	0.022 $\mu$ F	50 V		Ceramic
C846	ECEA1EN330S	33 $\mu$ F	25 V		Non Pole
C847	QET51HR-106H	10 $\mu$ F	50 V		Electrolytic
C848	QET51HR-106H	10 $\mu$ F	50 V		Electrolytic
C849	QET51HR-106H	10 $\mu$ F	50 V		"
C850	QCC21EM-223	0.022 $\mu$ F	25 V		Ceramic
C851	QCC21EM-223	0.022 $\mu$ F	25 V		"
C852	QCC21EM-223	0.022 $\mu$ F	25 V		"
C853	QCT26UJ-330	33 pF	"		"
C854	QCF21HP-102	1000 pF	50 V		"
C855	QFM81HK-473	0.10 $\mu$ F			
C856	QFM81HK-473	0.047 $\mu$ F	50 V		Myler
C857	QCF21HP-103	0.010 $\mu$ F	50 V		Ceramic
C858	QCT26UJ-330	33 pF	50 V		"
C859	QCT26UJ-330	33 pF	50 V		Ceramic
C860	QCT26UI-330	33 pF	"		"
C861	QCF21HP-223	0.022 $\mu$ F	"		"
C862	QFM81HK-473	0.047 $\mu$ F	"		Myler
C863	QCF21HP-103	0.010 $\mu$ F	"		Ceramic
C864	QFM81HK-104	0.1 $\mu$ F	"		Myler

**Diodes**

Item No.	Part Number	Rating		Description	
		Maker		Maker	
D801	ERB12-02RKL1			Silicon	Fuji
	1S2076-31			"	Hitachi
	1S2076-31			"	"
	1S2076-31			"	"
	RD5,6EB3			(Zener)	NEC
D806	RD5,6EB3			"	"
D807	1S2076-31			(Zener)	Hitachi
D808	1S2076-31			"	"
D809	ESAB03-02A			"	Fuji
D810	1S2076-31			LED	NEC
D811	LN321GP			"	Matsu-shita
D812	LN221RP			"	"
D813	LN221RP			"	"
D814	LN221RP			"	"
D815	LN221RP			"	"

**Coil**

Item No.	Part Number	Rating	Description
L801	E03062-44		OSC Coil (400 kHz ± 10%)

**Resistors**

Item No.	Part Number	Rating		Description
R801	QRD141J-243SY	24 kΩ	1/4 W	Carbon
R802	QRG027J-101	100 Ω	2 W	Oxide Metal Film Resistor
R803	QRG037J-330	33 Ω	3 W	"
R804	QRD141J-222SY	22 kΩ	1/4 W	Carbon
R805	QRD141J-153SY	15 kΩ	1/4 W	" "
R806	QRD141J-104SY	100 kΩ	"	"
R807	QRD141J-473SY	47 kΩ	"	"
R808	QRD141J-153SY	15 kΩ	"	"
R809	QRD141J-102SY	1 kΩ	"	"
R810	QRD141J-102SY	1 kΩ	"	"
R811	QRD141J-102SY	1 kΩ	"	"
R812	QRD141J-242SY	2.4 kΩ	"	"
R813	QRD141J-242SY	2.4 kΩ	"	"
R814	QRD141J-433SY	43 kΩ	"	"
R815	QRD129J-4R7		1/2 W	"
R816	QRD141J-472SY	4.7 kΩ	1/4 W	"
R817	QRD141J-302SY	3 kΩ	"	"
R818	QRD141J-752SY	7.5 kΩ	"	"
R819	QRD141J-472SY	4.7 kΩ	"	"
R820	QRD141J-103SY	10 kΩ	"	"
R821	QRD141J-2D2SY	2 kΩ	"	"
R822	QRD141J-202SY	2 kΩ	"	"
R823	QRD141J-103SY	10 kΩ	"	"
R824	QRD141J-223SY	22 kΩ	"	"
R825	QRD141J-224SY	220 kΩ	"	"
R826	QRD141J-224SY	220 kΩ	"	"
R827	QRD141J-103SY	10 kΩ	"	"
R828	QRD141J-103SY	"	"	"
R829	QRD141J-103SY	"	"	"
R830	QRD141J-104SY	100 kΩ	"	"
R831	QRD141J-274SY	270 kΩ	"	"
R832	QRD141J-224SY	220 kΩ	"	"
R833	QRD141J-103SY	10 kΩ	"	"
R834	QRD141J-103SY	10 kΩ	"	"
R835	QRD141J-225SY	2.2 MΩ	"	"
R836	QRD141J-225SY	2.2 MΩ	"	"
R837	QRD141J-225Y	2.2 MΩ	"	"
R838	QRD141J-822SY	8.2 kΩ	"	"
R839	QRD141J-822SY	8.2 kΩ	"	"
R840	QRD141J-822SY	8.2 kΩ	"	"
R841	QRD141J-822SY	8.2 kΩ	"	"
R842	QRD141J-822SY	8.2 kΩ	"	"
R843	QRD141J-331SY	330 Ω	"	"
R844	QRD141J-822SY	8.2 kΩ	"	"
R845	QRD141J-822SY	8.2 kΩ	"	"
R846	QRD141J-103SY	10 kΩ	"	"
R847	QRD141J-223SY	22 kΩ	"	"
R848	QRD141J-822SY	8.2 kΩ	"	"
R849	QRD141J-822SY	8.2 kΩ	"	"
R850	QRD141J-473SY	47 kΩ	"	"
R851	QRD141J-475SY	4.7 MΩ	"	"
R852	QRD141J-475SY	4.7 MΩ	"	"
R853	QRD141J-473SY	47 kΩ	"	"
R854	QRD141J-822SY	8.2 kΩ	"	"
R855	QRD141J-822SY	8.2 kΩ	"	"
R856	QRD141J-822SY	8.1 kΩ	"	"
R857	QRD141J-822SY	8.2 kΩ	"	"
R858	QRD141J-822SY	8.2 kΩ	"	"
R859	QRD141J-472SY	4.7 kΩ	"	"
R860	QRD141J-472SY	4.7 kΩ	"	"
R861	QRD141J-103SY	10 kΩ	"	"
R862	QRD141J-103SY	10 kΩ	"	"
R863	QRD141J-103SY	10 kΩ	"	"
R864	QRD141J-103SY	10 kΩ	"	"
R865	QRD141J-472SY	4.7 kΩ	"	"
R866	QRD141J-472SY	4.7 kΩ	"	"
R867	QRD141J-183SY	18 kΩ	"	"
R868	QRD129J-680	68 Ω	1/2 W	OMF
R869	QRV144F-3001	30 Ω	1/4 W	OMF

Item No.	Part Number	Rating		Description
R870	QRD141J-182SY	1.8 kΩ	1/4 W	Carbon
R871	QRD-149J-470S	47 Ω	"	"
R872	QRD129J-472	4.7 Ω	"	"
R873	QRV144F-3301	3.3kΩ	1/4 W	OMF
R874	QRD129J-680	68 Ω	1/2 W	Carbon
R875	QRV144F-3001	30 Ω	2/4 W	OMF
R876	QRV144F-3301	33 Ω	1/4 W	OMF
R877	QRD141J-182SY	1.8 kΩ	1/4 W	Carbon
C878	QRD149J-470S	47 Ω	1/4 W	"
R879	QRD129J-472	4.7 kΩ	1/2 W	"
R880	QRD141J-473SY	47 kΩ	1/4 W	"
R881	QRD141J-473SY	47 kΩ	"	"
R882	QRD141J-271SY	270 Ω	"	"
R883	QRD129J-4R7	4.7 Ω	1/2 W	"
R884	QRD129J-4R7	4.7 Ω	"	"
R885	QRD141J-222SY	2.2 kΩ	1/4 W	"
R886	QRD141J-273SY	27 kΩ	"	"
R887	QRD141J-272SY	2.7 kΩ	"	"
R888	QRD141J-102SY	1 kΩ	"	"
R889	QRD141J-223SY	22 kΩ	"	"
R890	QRD141J-473SY	47 kΩ	"	"
R891	QRD141J-105SY	1 MΩ	"	"
R892	QRD141J-105SY	1 MΩ	"	"
R893	QRD141J-102SY	1 kΩ	"	"
R894	QRD141J-224SY	220 kΩ	"	"
R895	QRD141J-223SY	22 kΩ	"	"
R896	QRD141J-123SY	12 kΩ	"	"
R897	QRD141J-155SY	1.5 MΩ	"	"
R898	QRD141J-912SY	9.1 kΩ	"	"
R899	QRD141J-224SY	220 kΩ	"	"
R900	QRD141J-473SY	47 kΩ	"	"
R901	QRD141J-122S	1.2 kΩ	"	"
R902	QRD141J-101SY	100 Ω	"	"
R903	QRD141J-293SY	390 Ω	"	"
R904	QRD141J-102SY	1 kΩ	"	"
R905	QRD141J-224SY	220 kΩ	"	"
R906	QRD141J-224SY	220 kΩ	"	"
R907	QRD141J-153SY	15 kΩ	"	"

**Resistors**

Item No.	Part Number	Rating	Description
VR801	QVP4A0B-104	100 k (B)	Carbon
VR802	QVZ3501-103	10 k (B)	Cermet
VR803	QVP4A0B-102	1 k (B)	Carbon
VR804	QVZ3501-473	47 k (B)	Cermet

**Others**

Item No.	Part Number	Rating	Description
SW801	QSP0410-001		Push SW (Size)
SW802	QSP0410-001		(STAND BY)
SW803	QSP0410-001		(REPEAT)
SM804	QSP0410-001		"
SM805	ESP0001-001		(SPEED) Switch
SM806	ESP0001-001		(PLAY/REJ) (UP/DOWN)

# 11. Packing Materials and Part Numbers

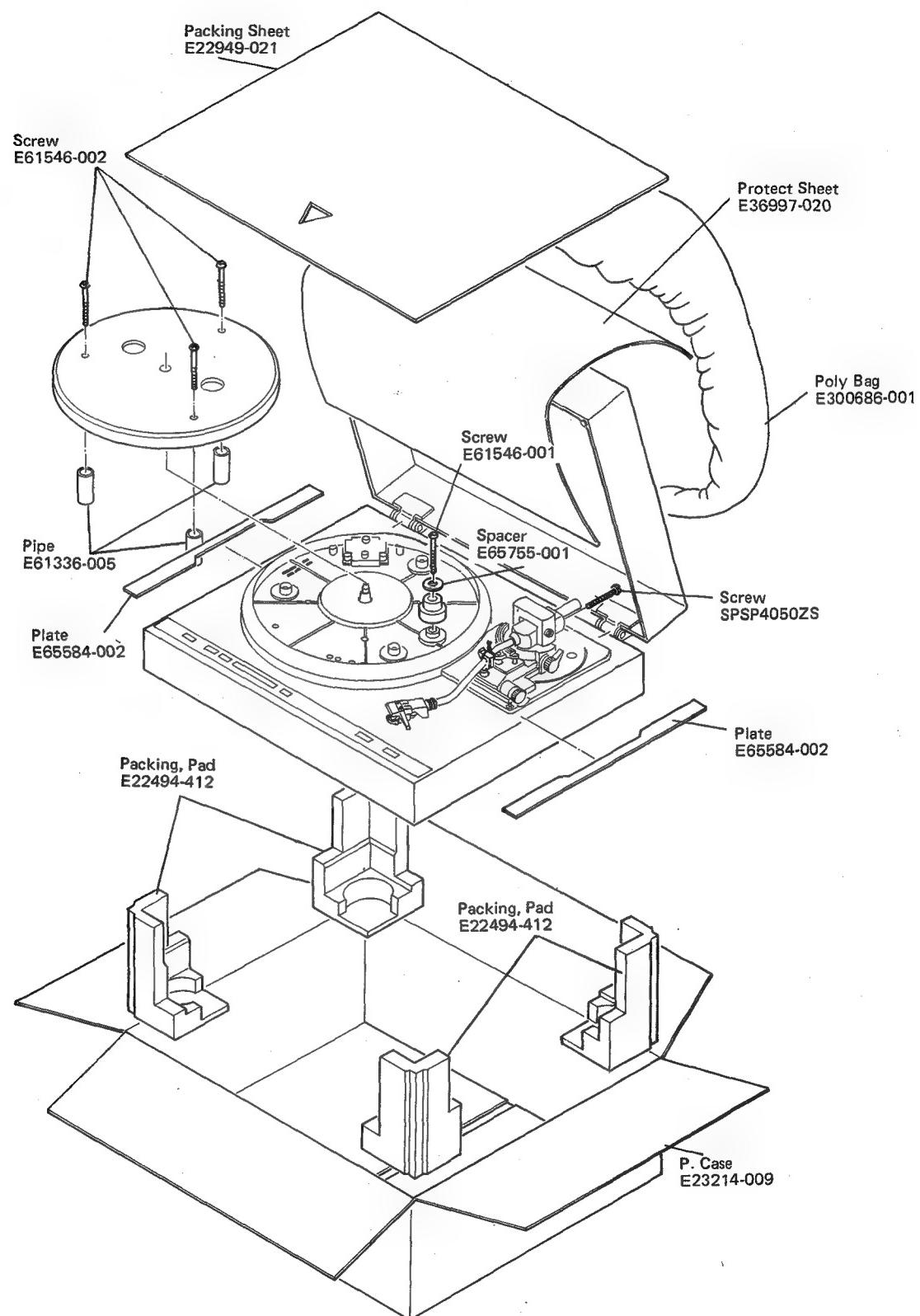
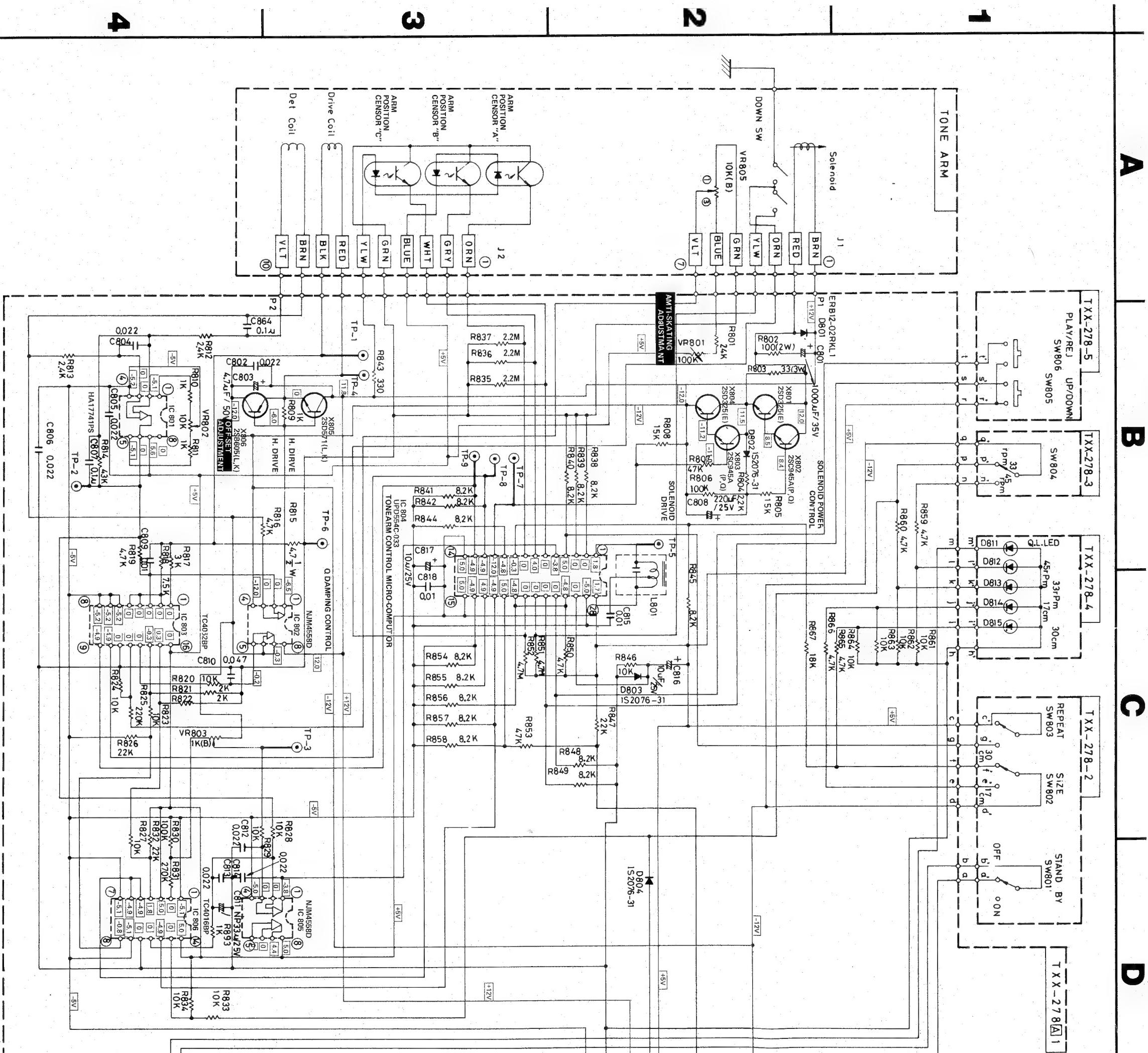
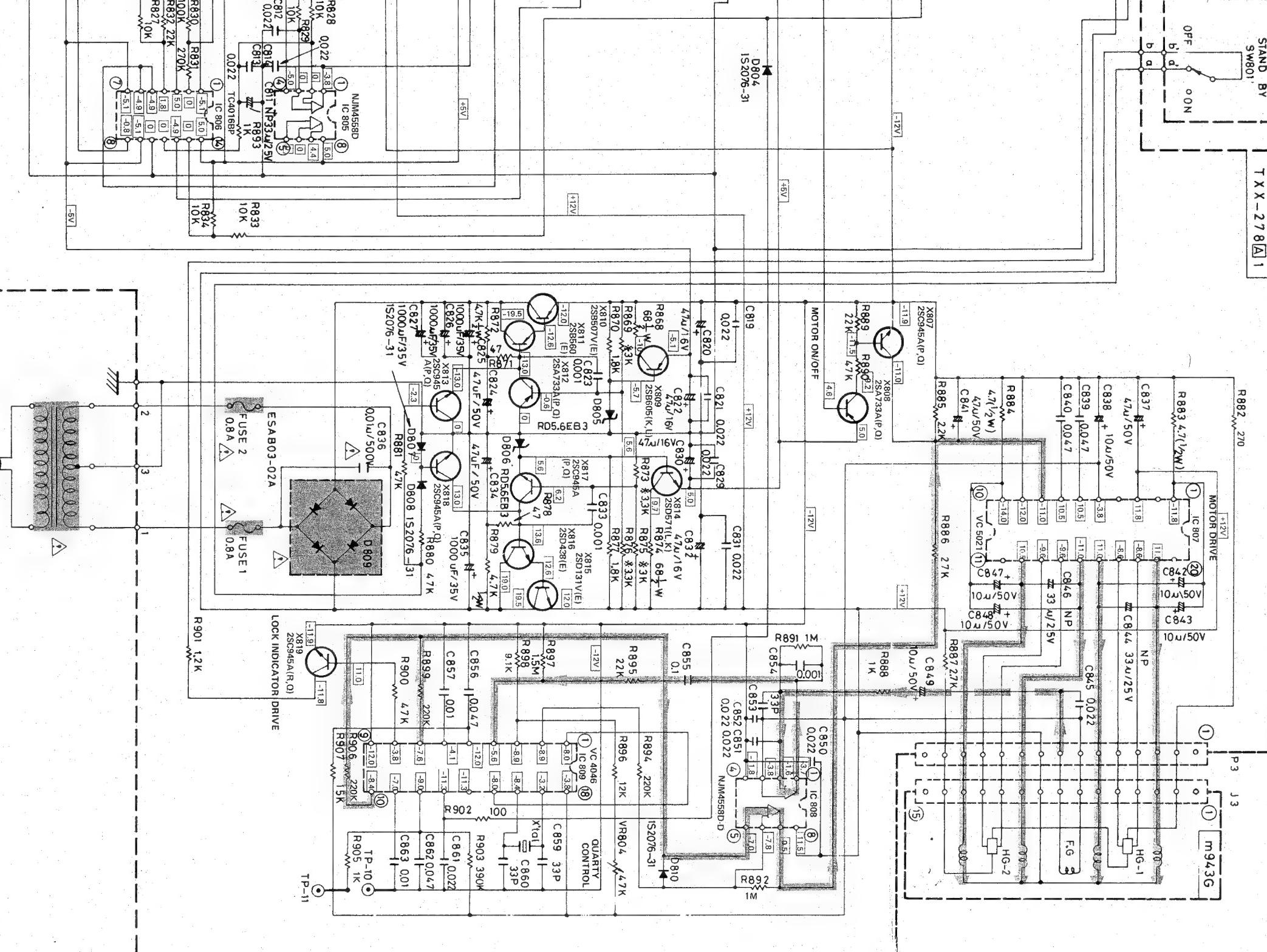


Fig. 27

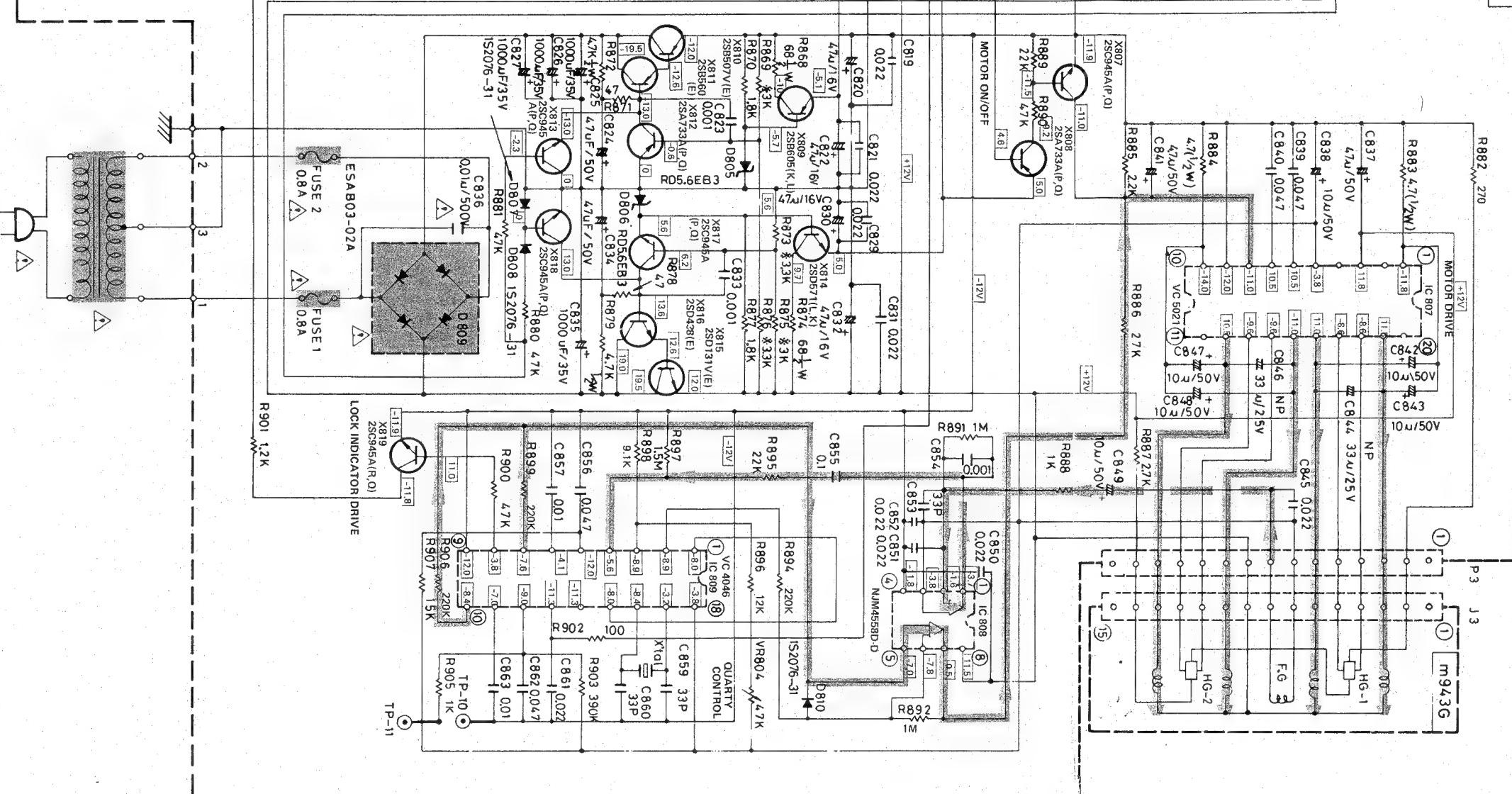
# 12. QL-Y3F Schematic Diagram



D



E



F

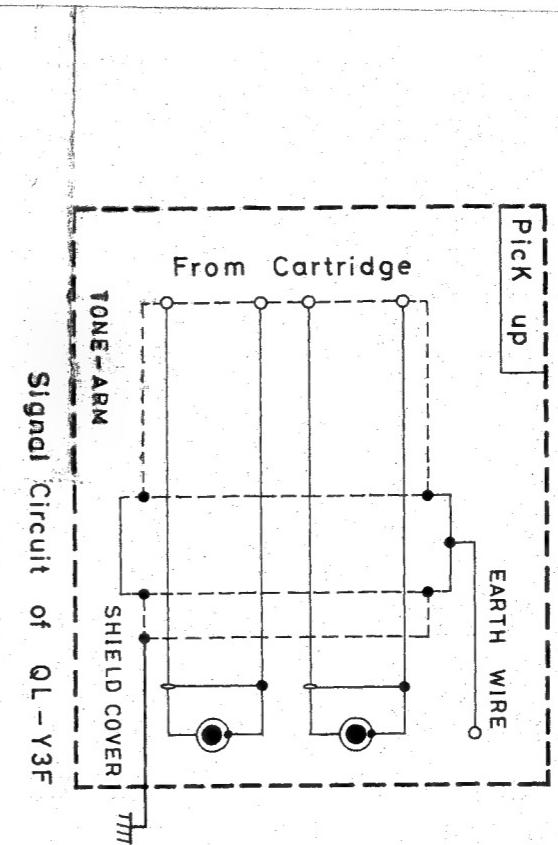


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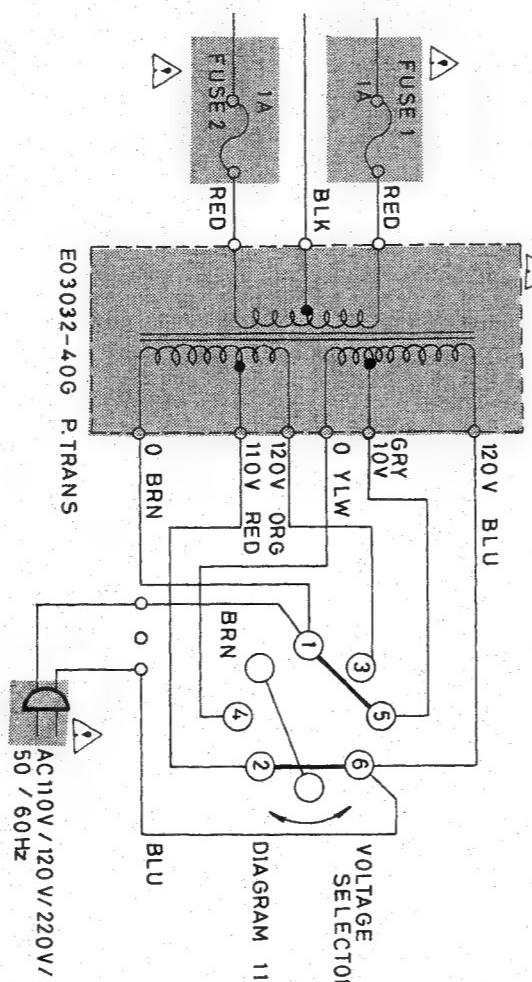
3

2

1



**P & U (for Pacex & Other areas )**



VOLT	110 V	120 V	240 V	220 V
CONNECTION	1-5,2-6	3-6,1-4	3 - 4	2 - 5

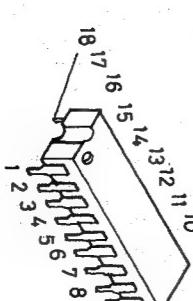
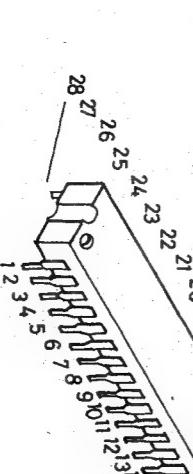
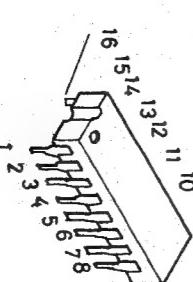
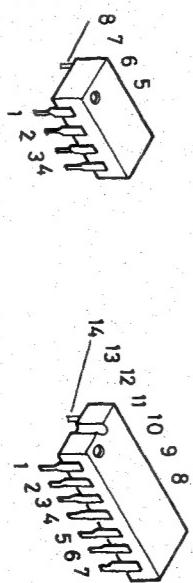
HA17741PS  
NJM4558D  
NJM4558D-D

TC4016BP

TC4052BP

UPD554C-033

VC4046



IC801 , IC802

IC805 , IC808

IC806

IC803

IC804

IC809

2SD438 (E)

2SB560 (E)

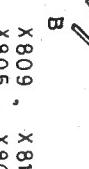
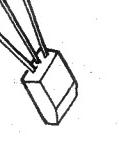
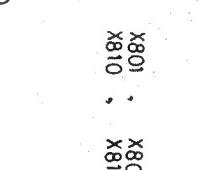
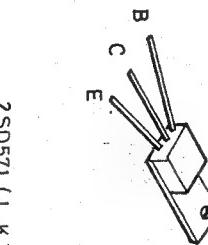
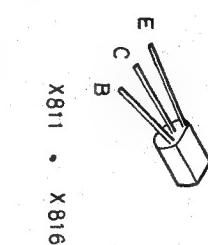
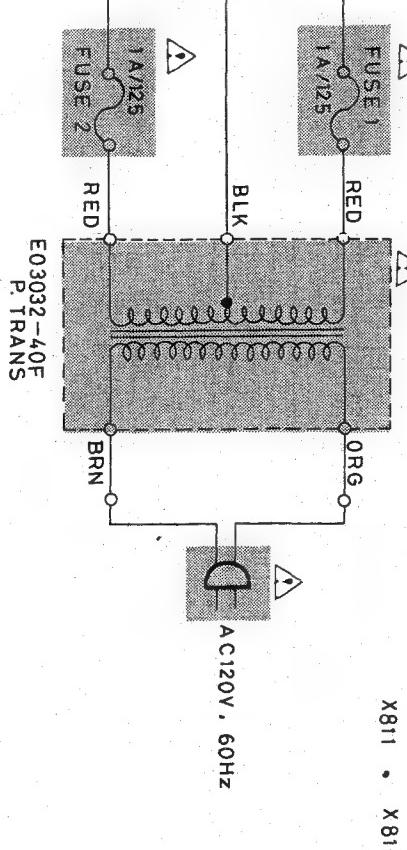
2SD325 (E)  
2SB511 (E)  
2SB507V (E)

2SC945A (P,Q)  
2SA733A (P,Q)

2SA733A (P,K)

LN221RP, LN321GP

### J & C (for USA & Canada)



CATHODE A NODE  
E C

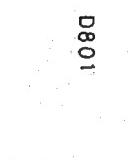
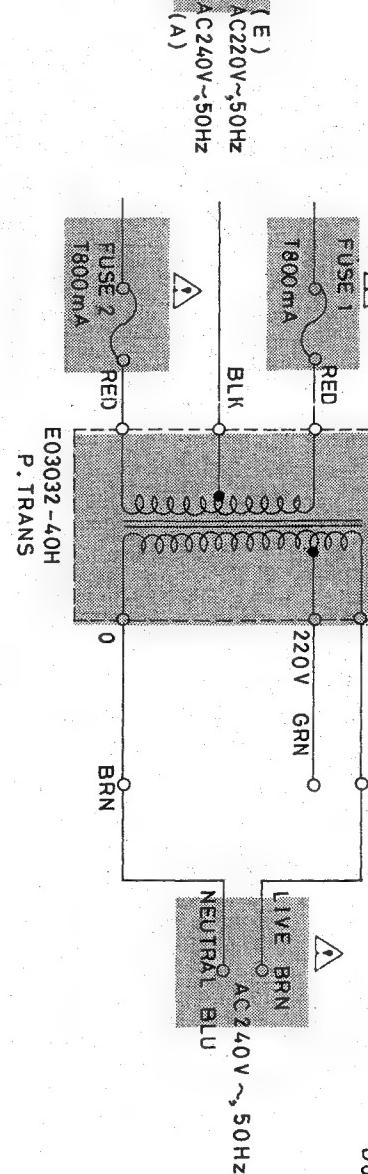


X802 ~ X803  
X807 ~ X808  
X812 ~ X813  
X817 ~ X819

LN221RP, LN321GP

D812~D815, D811

ERB12-02RKL1



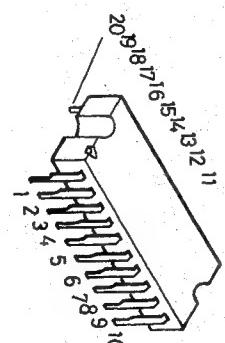
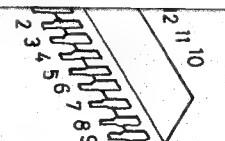
ESAB03-02A

RD5.6EB3

VC 5021

IS2076-31

4046



D805  
D806  
D807

D809

D802 ~ D804

D807, D808

D810

9

## 13. Accessories List

No.	Part Number	Description	Q'ty
1	E30580-854A	Instruction Book	1
2	See below	Warranty Card	1
3	BT20042	"Does it better" (for U.S.A. & U.S. Military Market only)	1
4	E41202-2	Envelope	1
5	E66329-001	EP Adapter	1
6	EO4056	Siemens Plug (for other areas only)	1

## 14. Parts List with Specified Numbers for Designated Areas

Page	Item No.	Description	U.S.A.	Canada	Europe	U.K.	Australia	U.S. Military Market and Other Countries
16	4	Tonearm Ass'y	ARM-536	ARM-536	MP-316S	ARM-536	MP-316S	MP-316S
16	15	P.C. Board Ass'y	TX2-278B	TX2-278B	TX2-278C	TX2-278C	TX2-278C	TX2-278A
16	18	Power Transformer $\Delta$	E03032-40F	E03032-40F	E03032-40H	E03032-40HBS	E03032-40H	E03032-40G
16	31	Power Cord $\Delta$	QMP1200-200	QMP1200-200	QMP3900-200	QMP9017-008BS	QMP2560-244	QMP7600-250
16	32	Cord Clamp	QHS3876-162	QHS3876-162	A37897	A37897BS	A37897	A37897
16	49	C.S. Bracket	E65431-002	—	—	—	—	—
16	50	Voltage Selector $\Delta$	—	—	—	—	—	QSR0085-001U
16	35	Fuse $\Delta$	QMF61U1-1R0	QMF61U1-1R0	QMF51A2-R80L	QMF51A2-R80LBS	QMF51A2-R80L	QMF61U1-1R0
16	51	Barrier Plate	E67308-001	—	—	—	—	—
16	39	Foot Ass'y	E300666-006	E300666-006	E300666-005	E300666-005	E300666-005	E300666-005
16	46	Lug Strip Ass'y $\Delta$	—	—	QML1810-054	QML1810-054BS	QML1810-054	QML1810-054
16	48	Mask Cap	E65395-002	E65395-002	—	—	—	—
21	—	Fuse Clip	E45524-002	E45524-002	E48965-002	E48965-002	E48965-002	E45524-002
24	—	Warranty Card	BT20032B	BT20025C	—	BT20013C	BT20029B	BT20032B (U.S. Military Market only)
16	37	Bottom Cover Ass'y	E10547-005	E10547-004	E10547-004	E10547-004	E10547-004	E10547-004
16	47	Connector $\Delta$	E03830-001	—	—	—	—	—
40	—	Foot Ass'y	E300666-004	E300666-004	E300666-003	E300666-003	E300666-003	E300666-003
52	—	Barrier Plate	E67589-001	—	—	—	—	—

$\Delta$  : Safety parts

### Power Specifications

Countries	Line Voltage & Frequency	Power Consumption
U.S.A. & CANADA	AC 120 V~, 60 Hz	16 Watts
CONTINENTAL EUROPE	AC 220 V~, 50 Hz	"
U.K. & AUSTRALIA	AC 240 V~, 50 Hz	"
U.S. MILITARY MARKET	AC 110/120/220/240 V~ Selectable, 50/60 Hz	"
OTHER AREAS	AC 110/120/220/240 V~ Selectable, 50/60 Hz	"

**JVC**

VICTOR COMPANY OF JAPAN, LIMITED, TOKYO, JAPAN

 Printed in  
— 5506 —

161  
**JVC**

MODEL **QL-Y3F**  
QUARTS FULLY AUTOMATIC TURNTABLE

# **SERVICE MANUAL**

## **SUPPLEMENT**

No. 2521-2 DEC. 1980

This Service Manual provides you with information on changes of the voltage of checking point in accordance with circuit alteration in the QL-Y3F made for improved performance, precautions for servicing, and checking methods. You may also refer to QL-Y3F original Service Manual No. 2521.

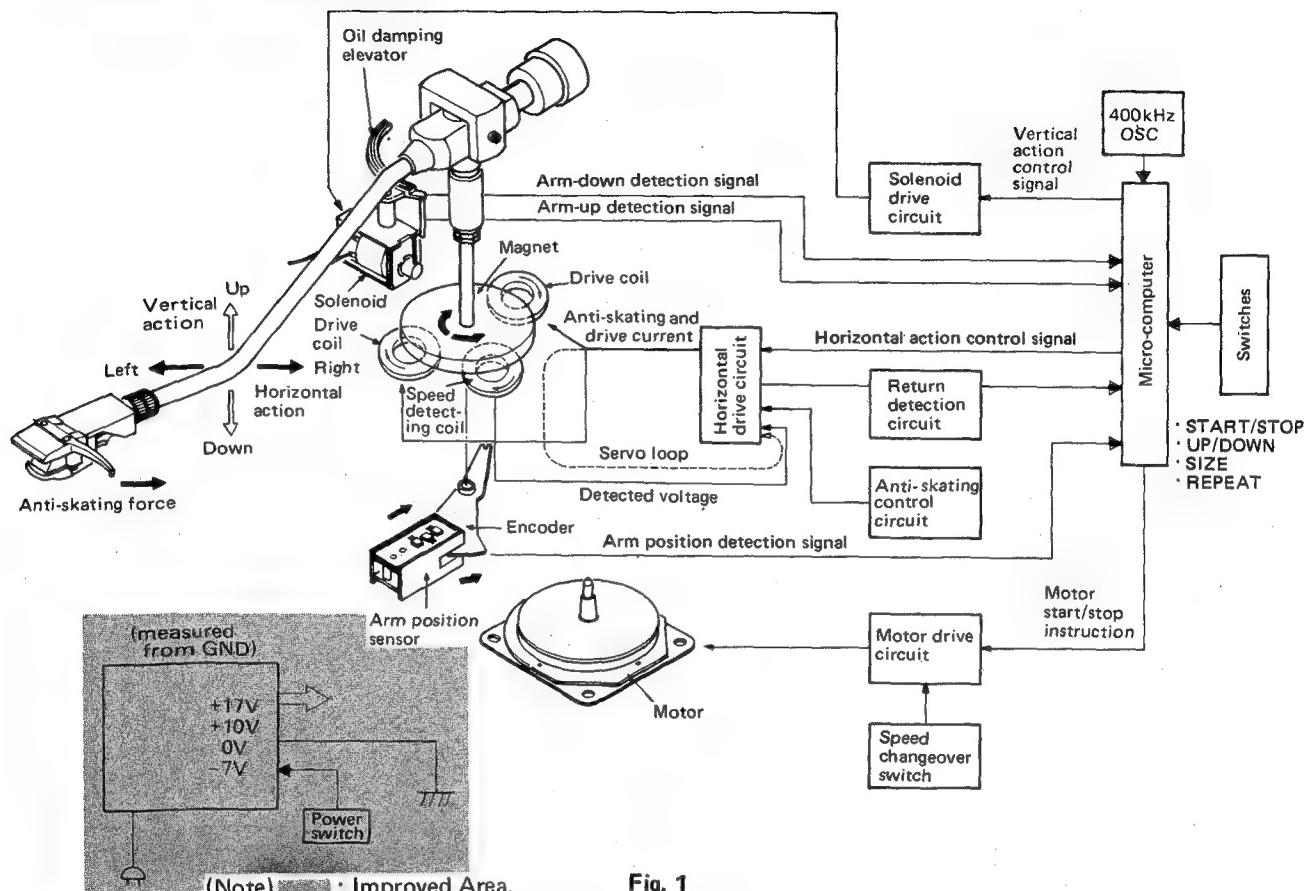
## **Location of changes in original Service Manual**

Page	Item No.	Description
3	4-(1)	Electro-dynamic Servo Control Tonearm
5	5-(4)	Lead-out Adjustment
5	5-(7)	Quarts Oscillation Wave Phase Adjustment
7, 8	7-(1)	The turntable does not rotate
9	7-(2)	The turntable rotates at high speed
10	7-(3)	Q-damping is abnormal
"	7-(4)	Repeat operation is abnormal
"	7-(5)	Tonearm action is abnormal
11	"	"
12	"	"
13	"	"

161

# 1. New Technology

## 1-(1) Electro-dynamic Servo Control Tonearm



## 2. Adjustment Procedures

### 2-(1) Lead-out Adjustment

1. Adjust VR803 so that the tonearm returns at the 3mm pitch point of the test record (8602-44) and does not return at the 0.5mm pitch point of the test record (8602-45).

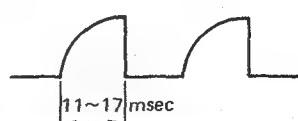
When the tonearm does not return at the 3mm pitch point of the test record (8602-44), adjust the voltage between TP-2 and TP-3 so that it is closer to 0V by about 20% than the set voltage.

When the tonearm returns at the 0.5mm pitch point of the test record (8602-45), adjust the said voltage so that it is closer to 0V by about 20% in absolute value than the set voltage.

### 2-(2) Quarts Oscillation Wave Phase Adjustment

1. Set RPM to 33-1/3.
2. Observe the wave duration (T) from leading to trailing edges, and adjust the duration to 11 ~ 17 msec with VR804.

Waveform on oscilloscope



(Note) █ : Improved Area.

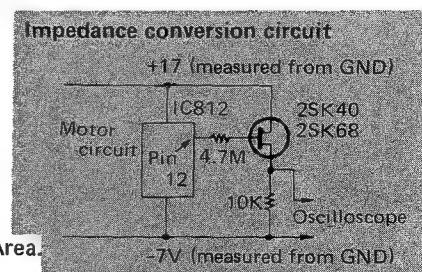
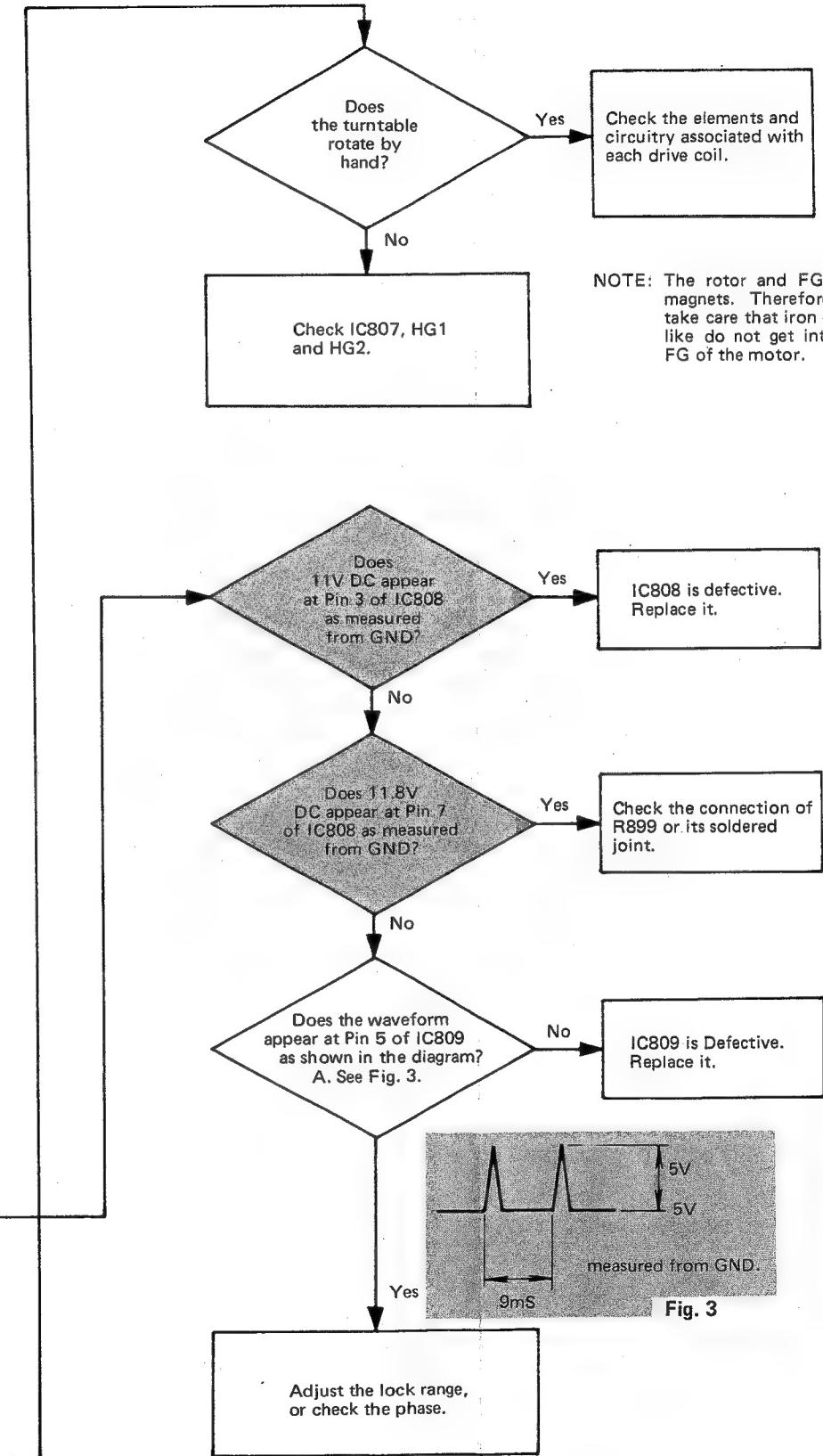
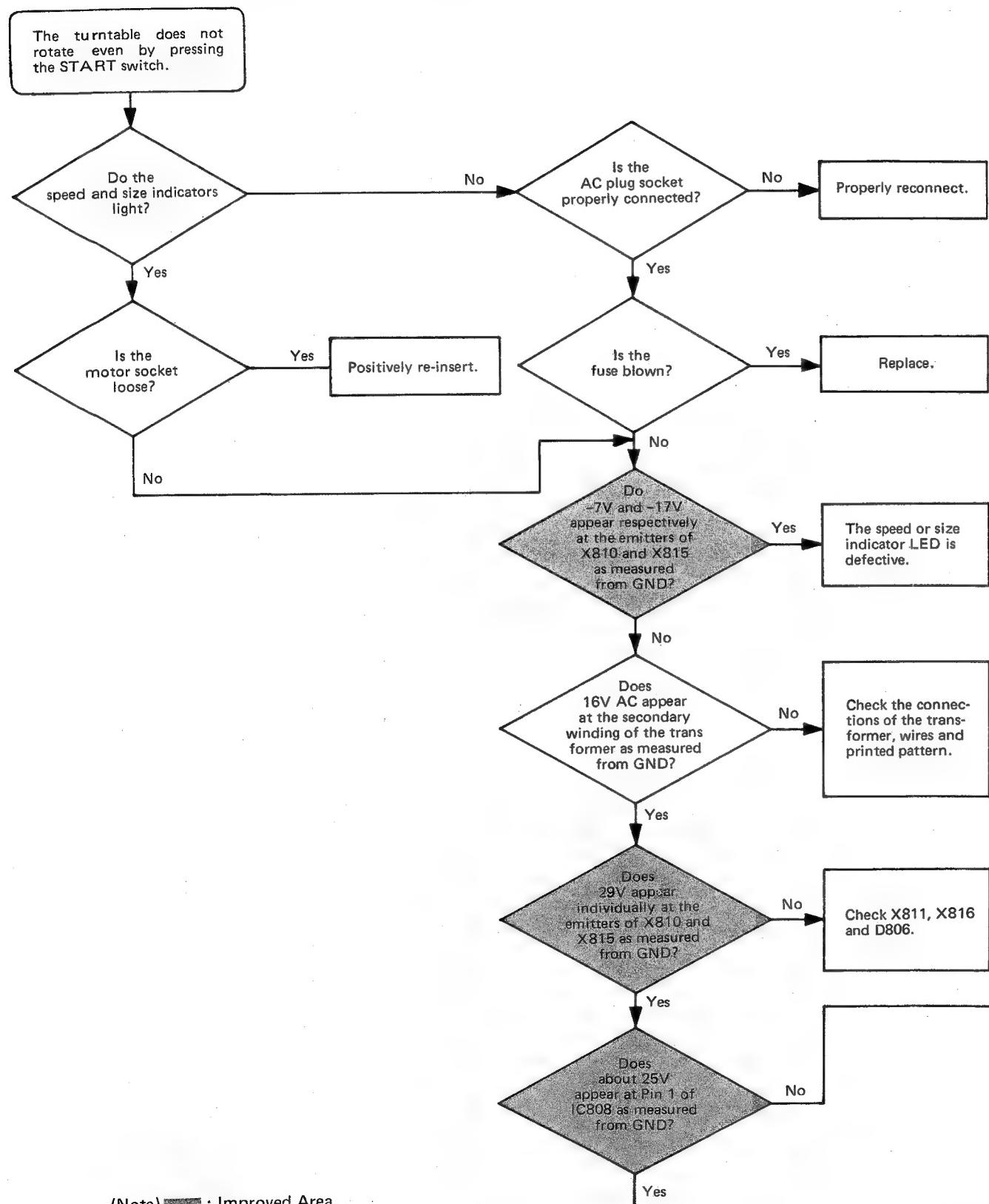


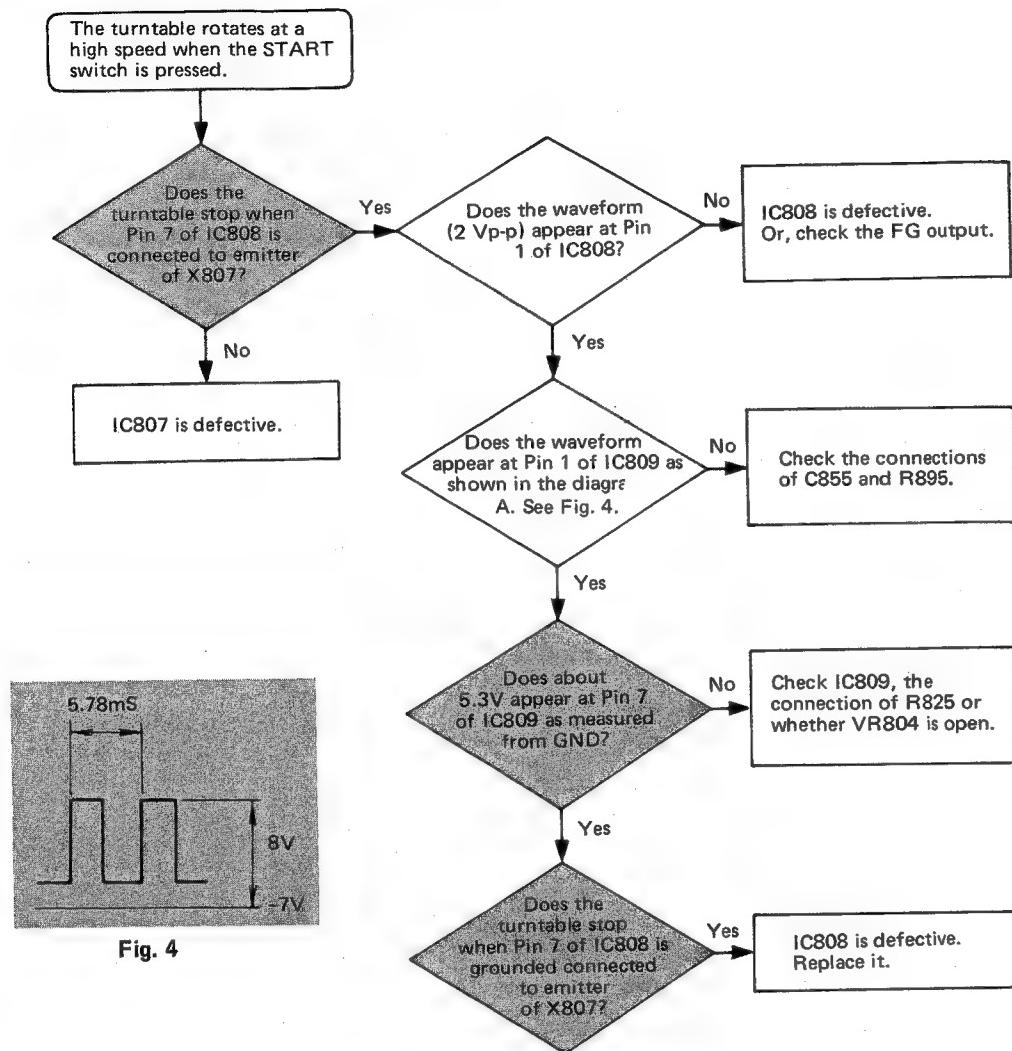
Fig. 2

### 3. Troubleshooting Charts

#### 3-(1) The turntable does not rotate

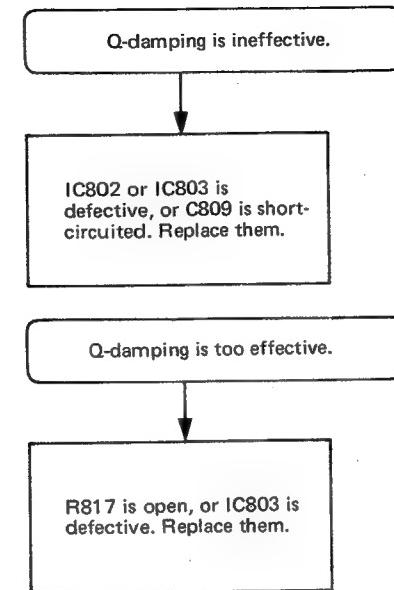


### 3-(2) The turntable rotates at high speed

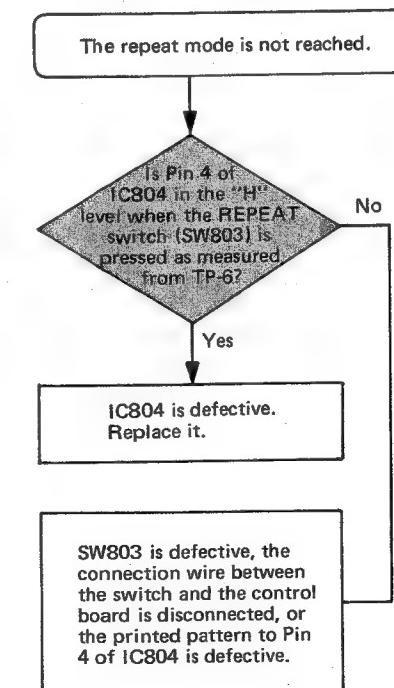


(Note) █ : Improved Area.

### 3-(3) Q-damping is abnormal

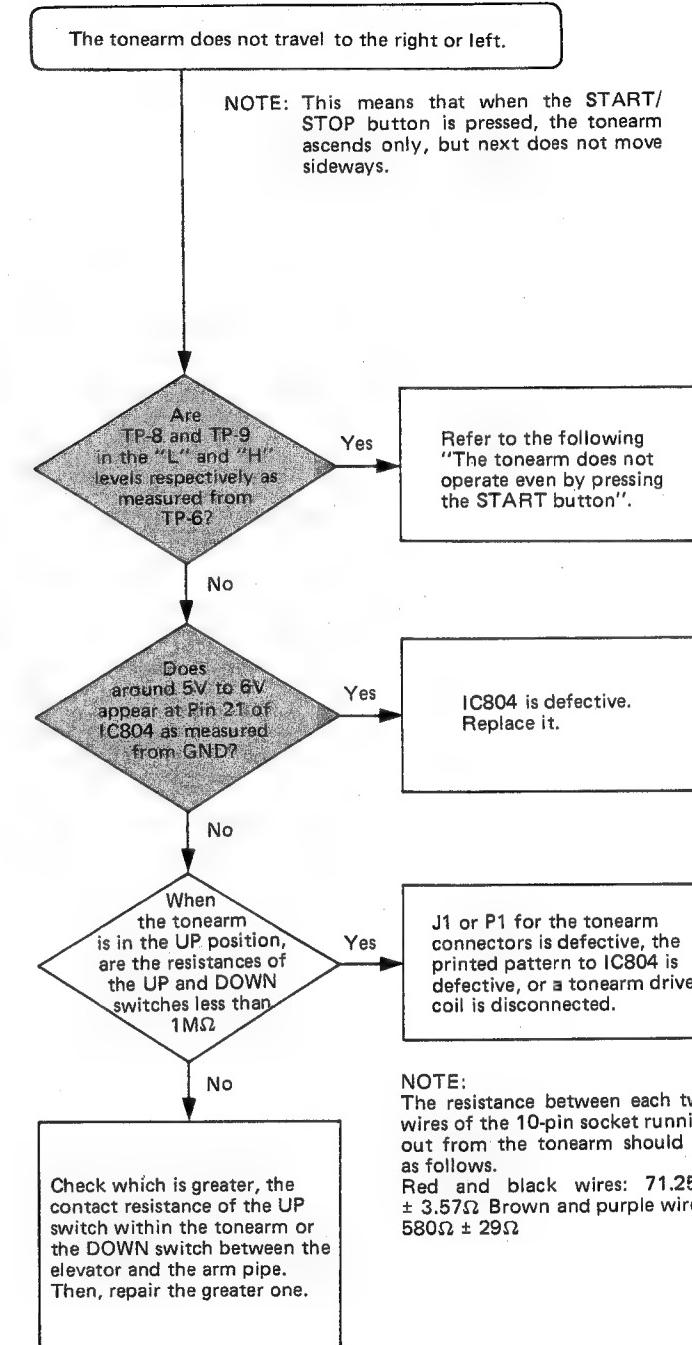


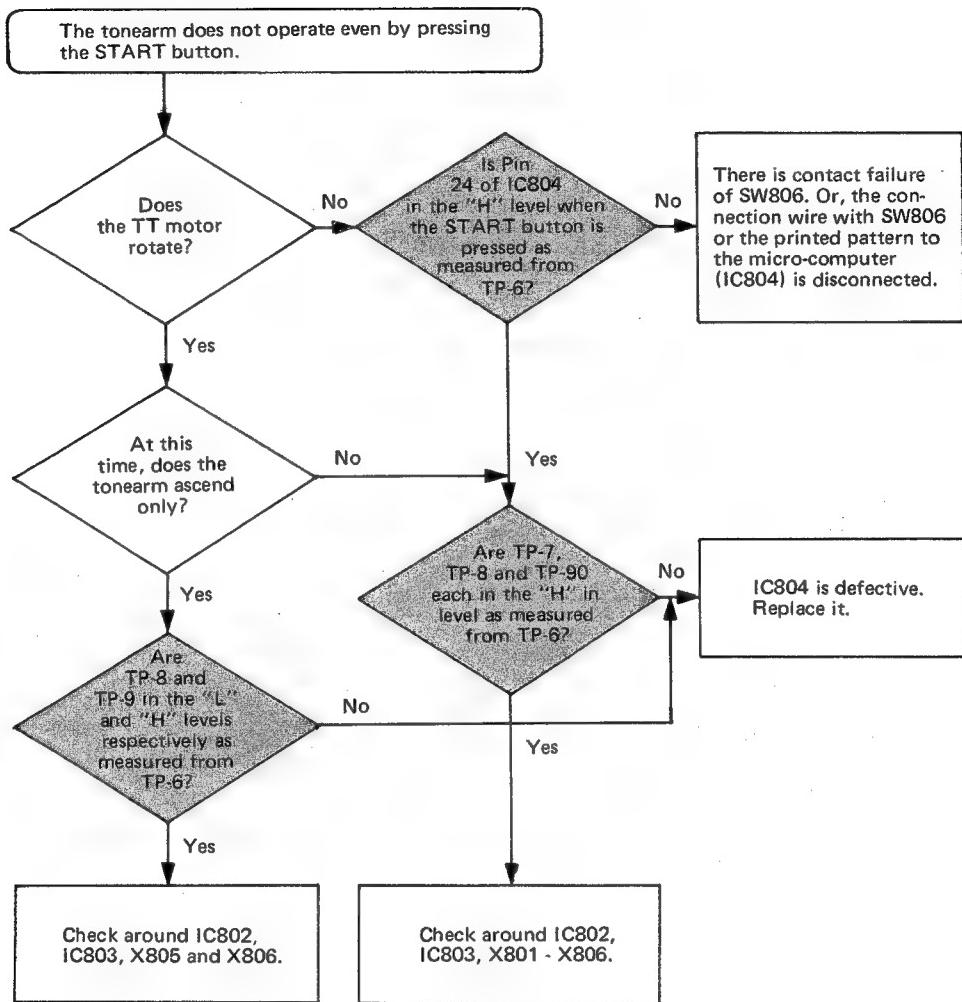
### 3-(4) Repeat operation is abnormal



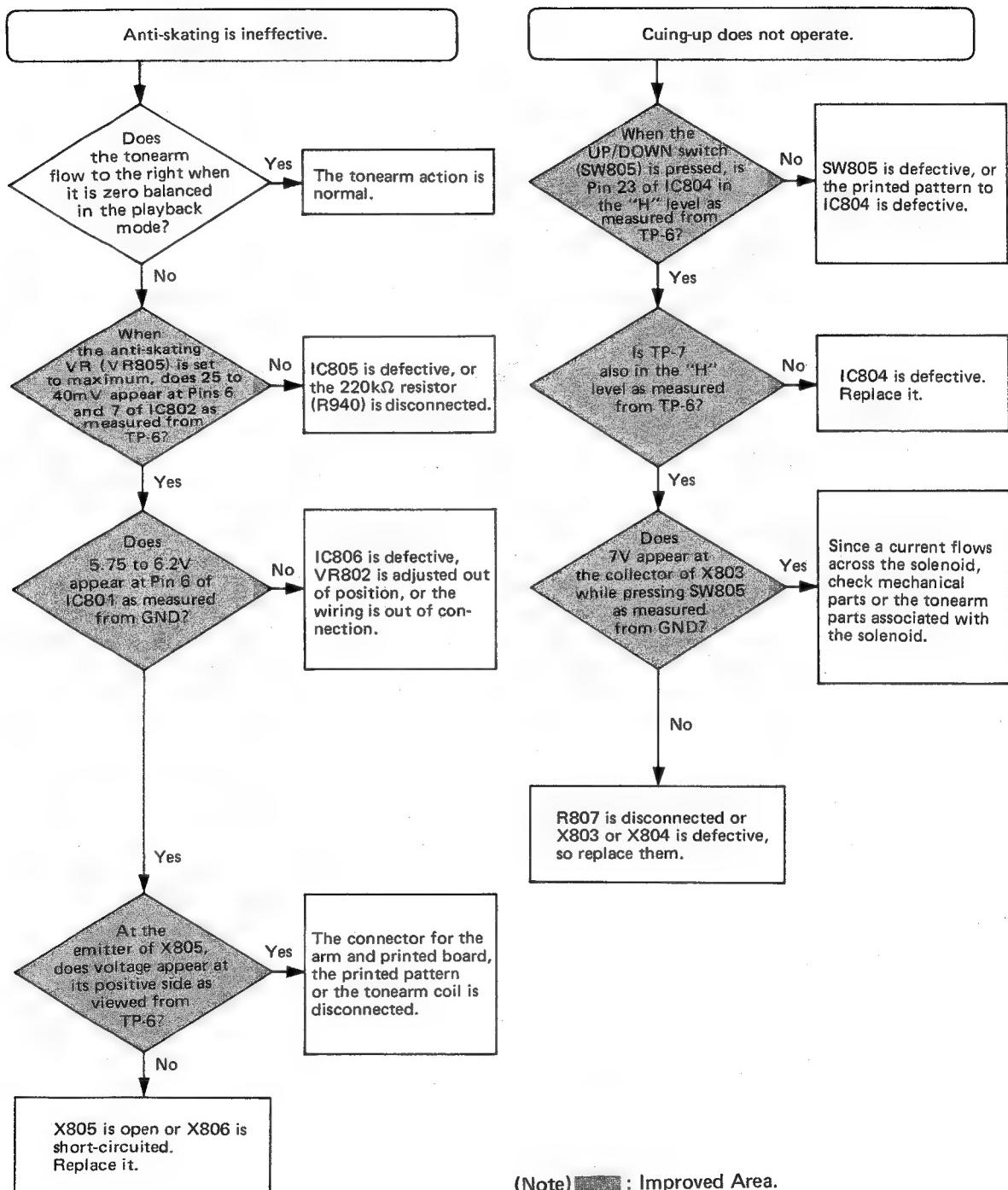
(Note) █ : Improved Area.

### 3-(5) Tonearm action is abnormal



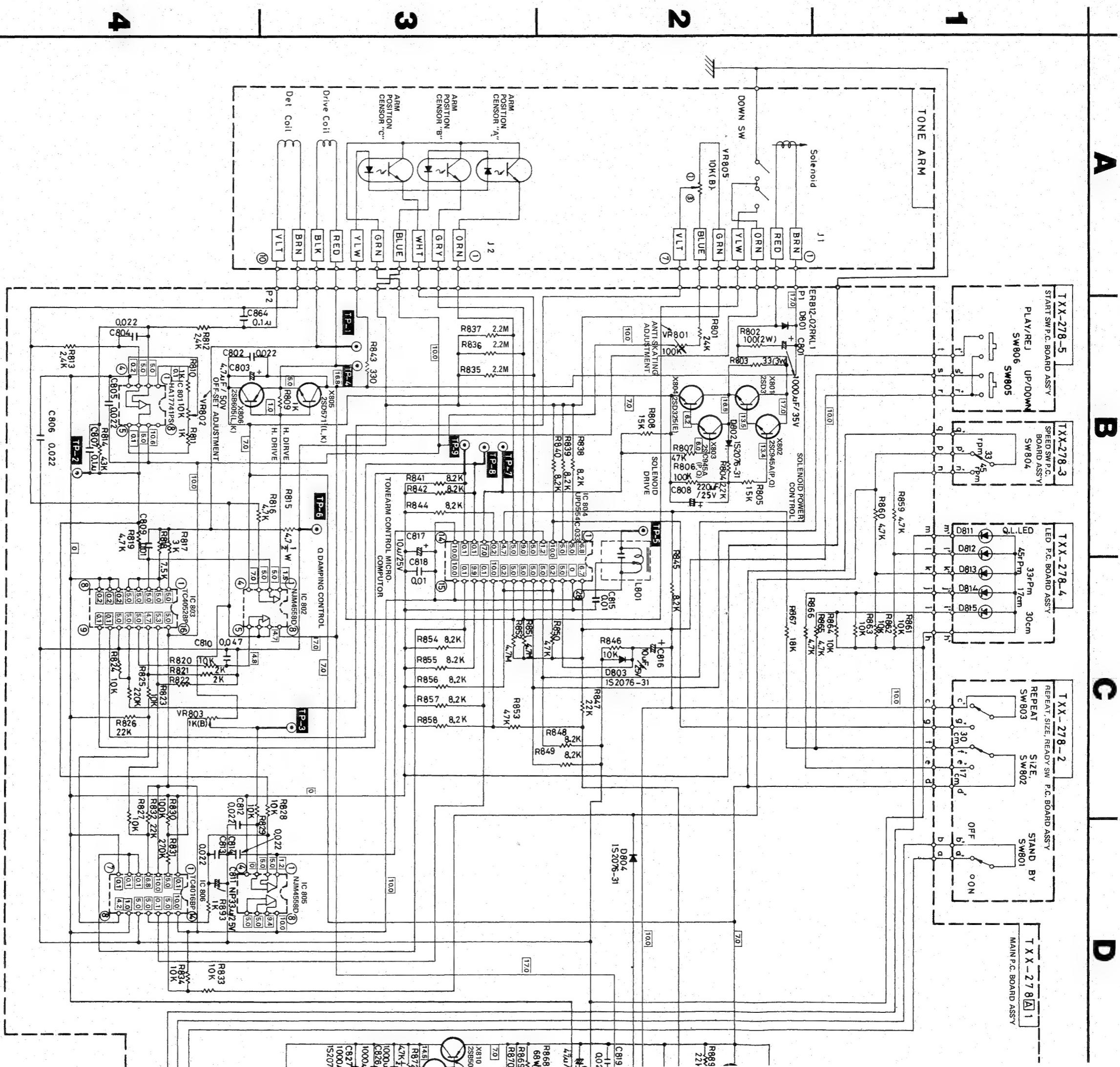


(Note) █ : Improved Area.



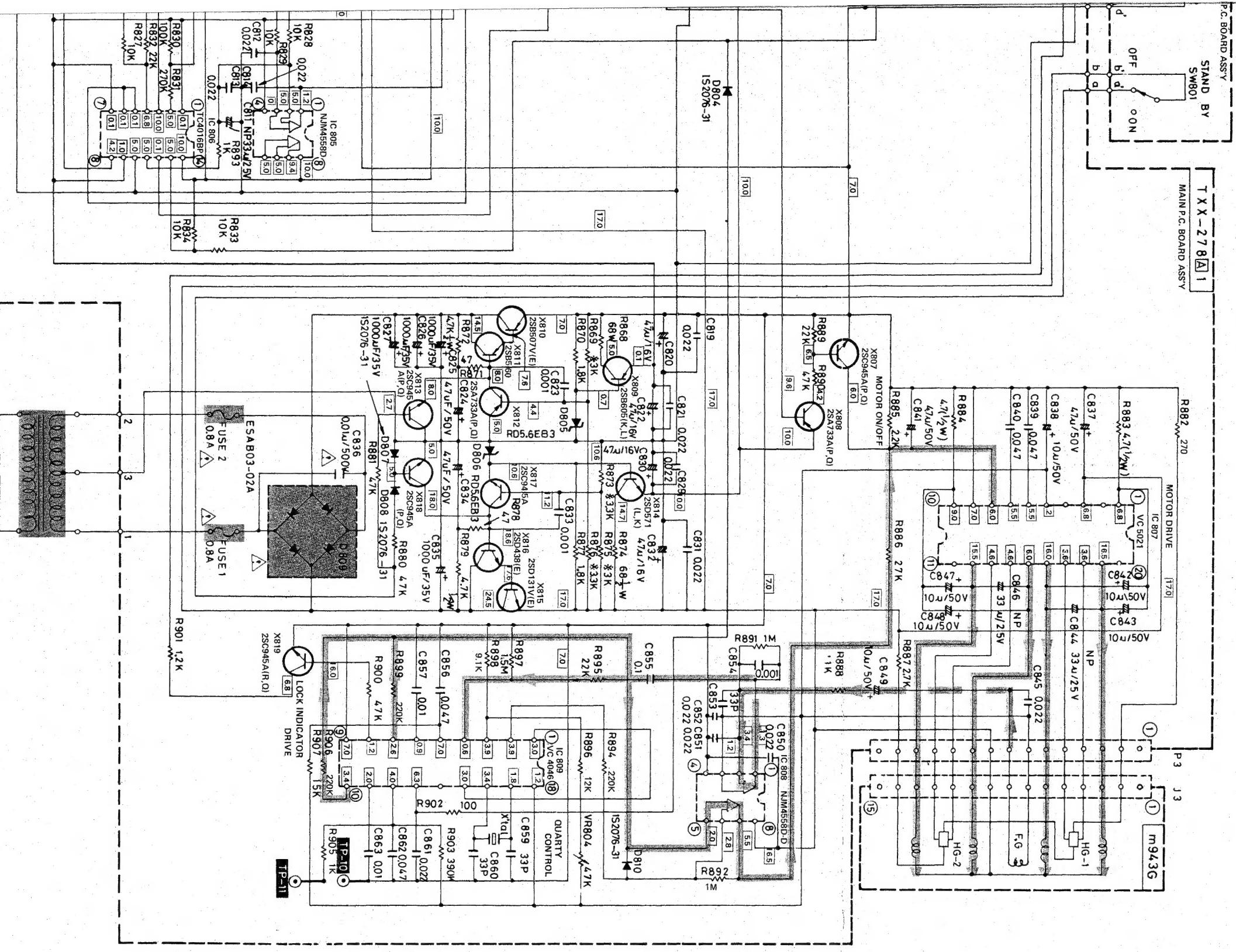
(Note) █ : Improved Area.

# 4. QL-Y3F Schematic Diagram



- Notes:**
1. Voltage values in   are positive.
  2. Voltage values in   are negative.
  3. — indicates positive B power supply.
  4. — indicates negative B power supply.
  5. — indicates signal path.

6. When replacing the parts in the darkened area ( ) and those marked with Δ, be sure to use the designated parts to ensure safety.
  7. Parts in red indicate transistors or ICs.
  8. This is the standard circuit diagram.
- The design and contents are subject to change without notice.



1

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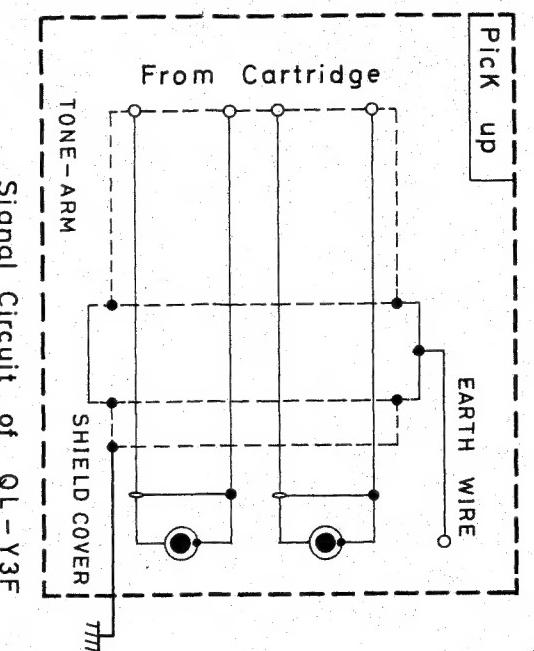
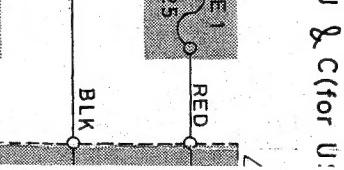
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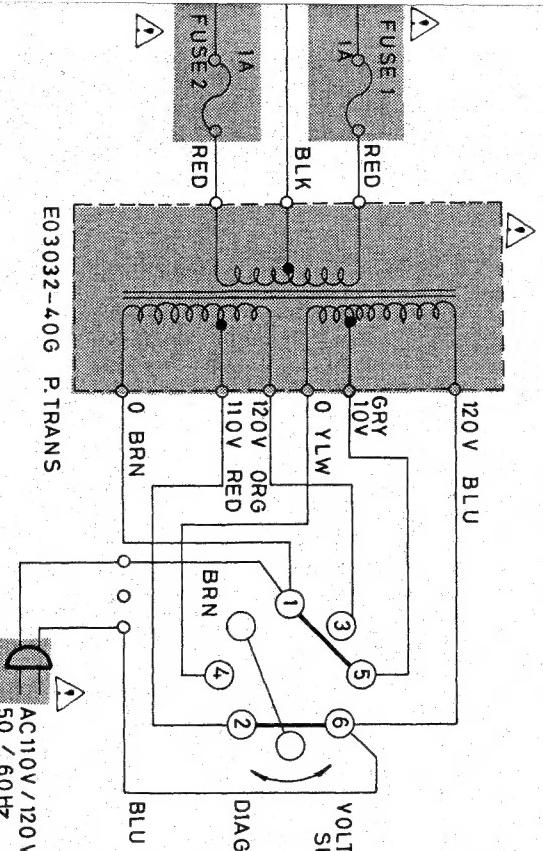
9

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### P & U (for Pacex & Other areas )



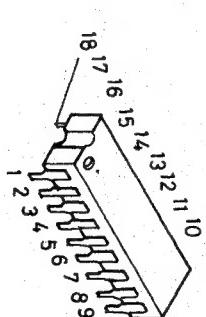
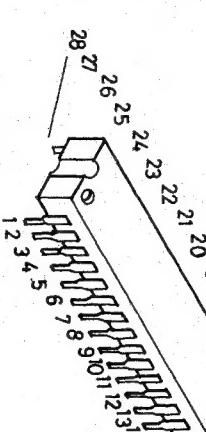
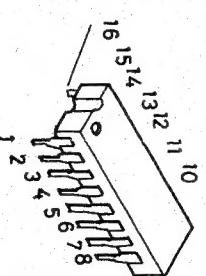
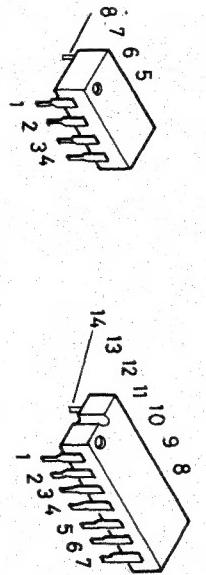
VOLT	110 V	120 V	240 V	220V
CONNECTION	1-5,2-6	3-6,1-4	3 - 4	2 - 5

HA17741PS  
NJM 4558D  
NJM 4558D-D

TC4016BP

UPD554C-033

VC4046



IC801 , IC802

IC805 , IC808

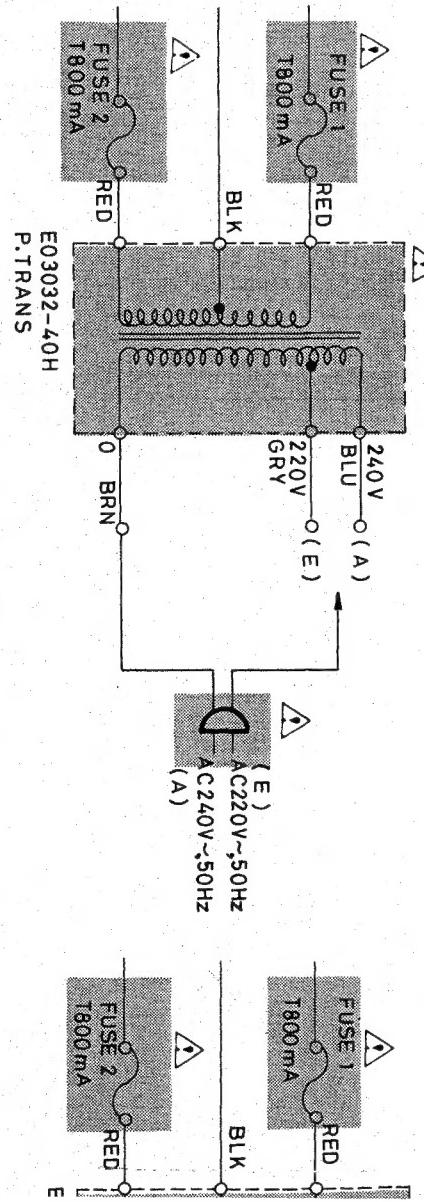
IC806

IC803

IC804

IC809

### E & A ( for Europe & Australia )



EO3032-40G P.TRANS

TC4052BP

EO3032-40H

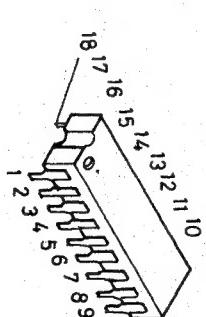
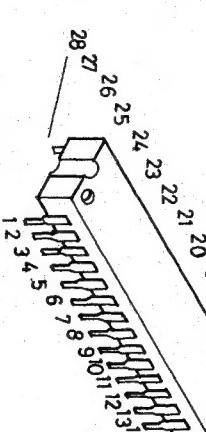
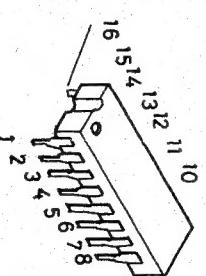
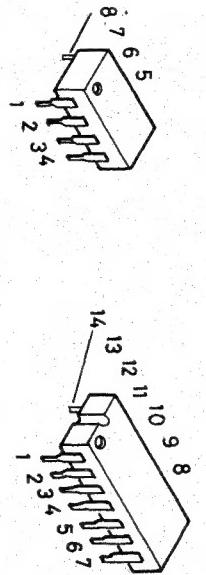
P.TRANS

HA17741PS  
NJM 4558D  
NJM 4558D-D

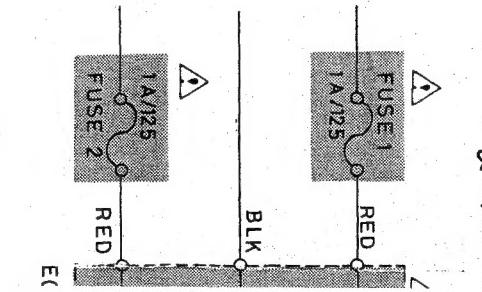
TC4016BP

UPD554C-033

VC4046



### B S ( f )

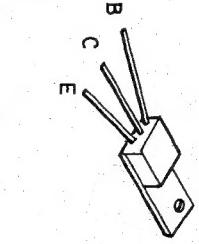
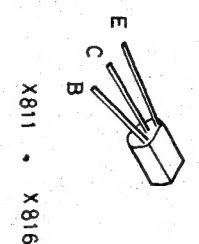
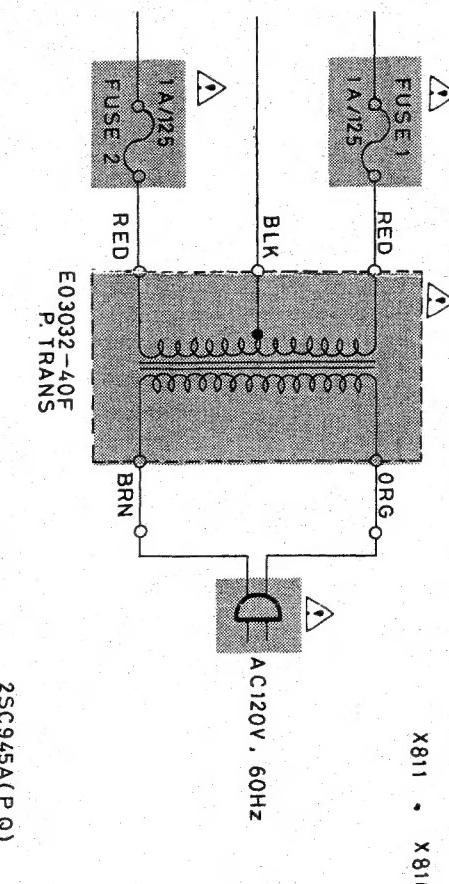


2SD438 (E)

2SD325 (E)  
2SB511 (E)  
2SB507V(E)

2SD313V (E)

J & C (for USA & Canada)



X801, X804  
X810, X815

2SD571 (L,K)  
2SB605 (K,L)

X809, X814  
X805, X806

2SC945A (P,Q)  
2SA733A (P,Q)  
2SA733A (P,K)

CATHODE ANODE

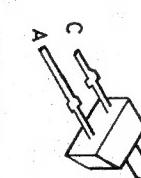


X838, X839, X840



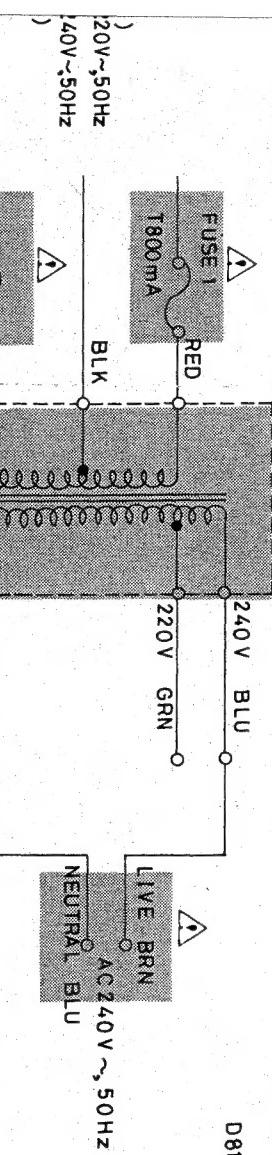
X802, X803  
X807, X808  
X812, X813  
X817 ~ X819

LN221RP, LN321GP



D812~D815, D811

ERB12-02RKL1



D801

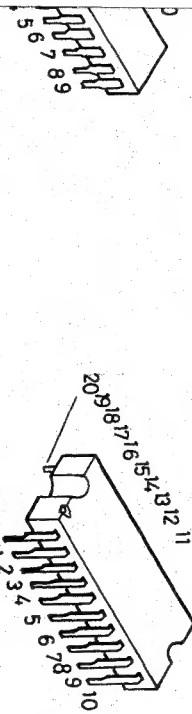
1S2076-31

ESAB03-02A

RD5,6EB3

VC 5021

6



IC807

D805

D806

D802 ~ D804

D807, D808

D810



D809

